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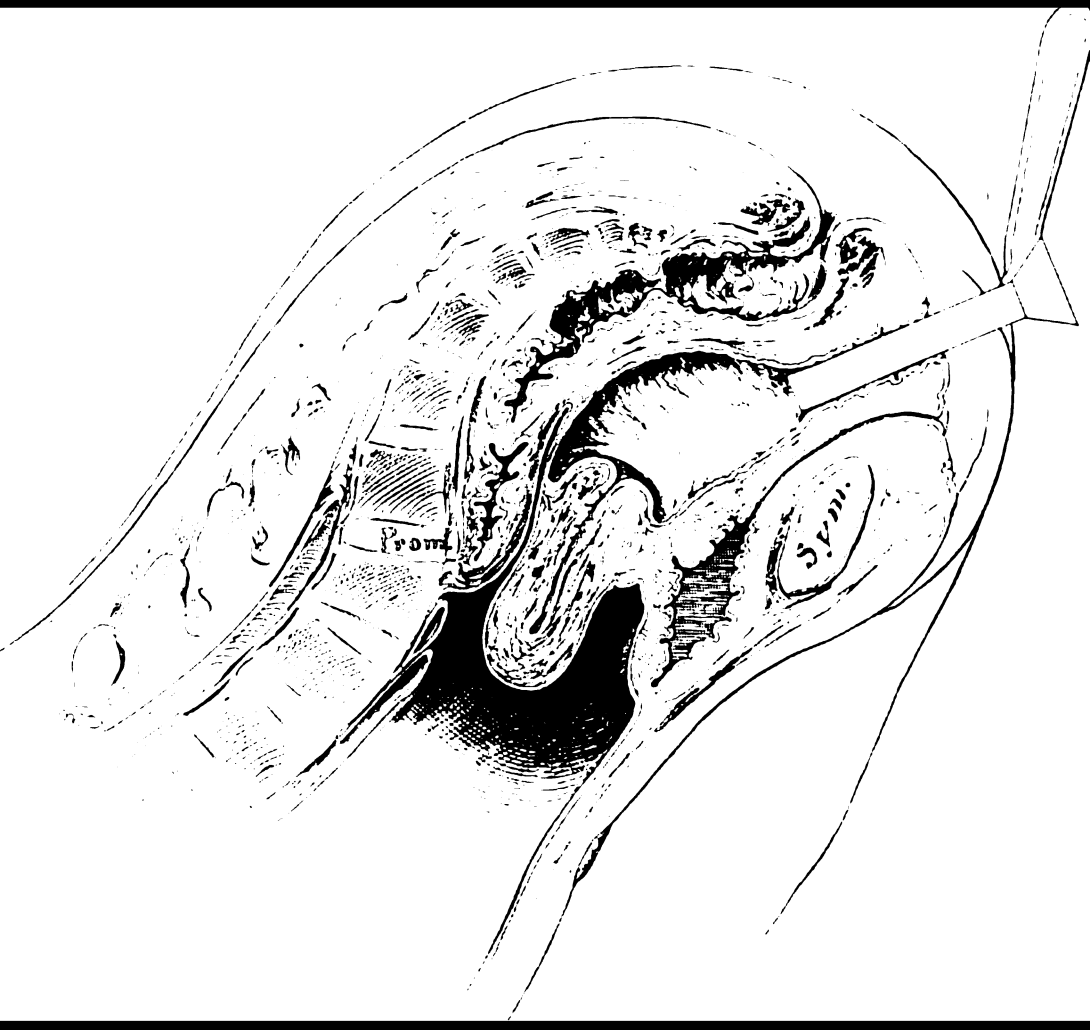
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JOURNAL OF OBSTETR

AND

DISEASES OF WOMEN AND CHILDREN

EDITED BY

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ORIGINAL COMMUNICATIONS.

THE RELATION OF UTERINE CONTRACTILITY TO FLEXION AND EXTENSION OF THE FETAL HEAD.

BY

MORLEY CURRIE, B.A., M.D.,
Picton, Ontario, Canada.

(With nine illustrations.)

THE plan followed in this article will be, first, the presentation of a mechanical proposition; second, the demonstration of the parallelism existing between the conditions presented in this proposition and those found in actual labor; and, third, the discussion of some of the influences which these mechanical conditions exert in labor.

First, let A B C D E F (Fig. 1) be a contractile tube containing a lubricated ellipsoid G L H M. Let the ends A F and C D of the tube be fixed. Let this tube be acted upon by longitudinal contractile forces acting in the direction A B C, and circular contractile forces acting in the direction of the circumference B E. The ends of the tube being fixed, both of these forces will tend to diminish the diameter B E of the tube.

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elliptical in shape. The fetal head *in utero* may therefore be considered, for the purposes of this article, to be a lubricated ellipsoid.

The lower portion of the uterus, containing the fetal head, is a contractile tube in which contractions take place both in the circular and longitudinal directions. To any one placing the finger between the fetal head and the lower portion of the uterus during a pain it is evident that the extent of this contractile force is considerable. This portion of the uterus has attachments above and below. Its mechanical properties are therefore the same as those of the tube A B C D E F (Fig. 1) previously described. The neck transmits the force from the contractile tube to the head over a small area of the latter, and may be considered as an irregularity on the inner surface of the uterus in discussing this contractile force.

The mechanical conditions previously explained by a reference to Fig. 1 are therefore a correct representation of the mechanical relations existing between the fetal head and the lower portion of the uterus. The conclusions to be drawn are, first, that the fetal head is in a condition of unstable equilibrium—as regards this force—when its longest diameter is at right angles to the axis of the uterine canal; second, that the contractile force of the lower portion of the uterus tends to flex or extend the head until its longest diameter coincides with the axis of the uterine canal whenever the head becomes slightly flexed or extended, as would be the case where its longest diameter assumed such positions as L_1M_1 or L_2M_2 (Fig. 1); and, third, that the contractile force of the uterus is an important factor in preventing flexion or extension of the head in those cases in which the head has become extended or flexed and the mechanism of labor requires this extension or flexion to be overcome.

Some of the common presentations will now be represented diagrammatically, and the foregoing principles will be applied to the mechanism of labor as it occurs in each case.

In Figs. 4, 5, 6, 7, 8, and 9 the fetal head is still represented by an ellipsoid. The contractile area of the uterus which exerts its action on the head is represented by a broken line. In Figs. 4 and 5 the extent of contact shown between the uterus and head is that found in frozen sections, with membranes intact, made, the former by Braun, and the latter by Pinard and Varnier. In the other diagrams the area of contact is inferred from what we find in these two cases. Obviously

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there will be an increase of the area of contact and of the force exerted after rupture of the membranes.

Fig. 4 represents an occipito-anterior position of the head *in utero* before flexion is complete. The occiput is to the right in the diagram. The longest diameter, L M, of the fetal head in this case forms a large angle with the diameter B E of the uterine canal. Here the contractile force of the uterus will be an important factor in producing that rapid flexion of the head which commonly occurs in this position.

Fig. 5 represents an occipito-posterior position with the occiput at the left of the diagram. The head is here extended so that the longest diameter, L M, makes a small angle with the transverse diameter, B E. The frozen section on which this

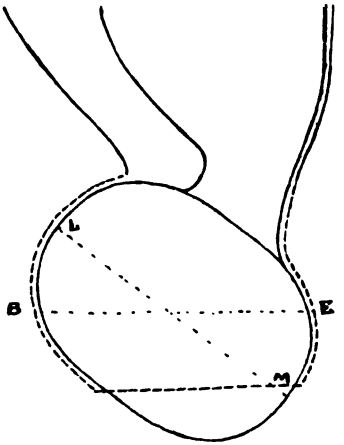


FIG. 4.

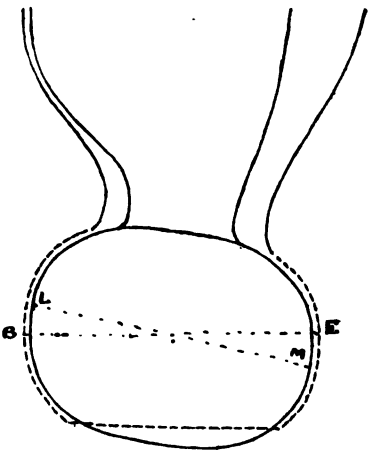


FIG. 5.

diagram is based was made after the os was dilated, and the extension of the head is not so marked as would be the case earlier in labor. The contractile force of the uterus will here tend to extend the head and will act in opposition to the forces which, as a rule, ultimately flex it. This action of the uterus is a factor in that slow flexion of the head which is so often seen in this position. As the area of contact with the head, and consequently this contractile force, are increased by rupture of the membranes, it is evident that intact membranes are a favorable factor in this position.

Fig. 6 represents a brow presentation with the occiput to the left of the diagram. Here the head is extended, its longest diameter, L M, forming a large angle with the diameter B E.

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Here the contractile force of the uterus will tend strongly to extend the head and produce a face presentation. It will also resist attempts to flex the head and produce a vertex presentation. As far as this factor is concerned, intact membranes are

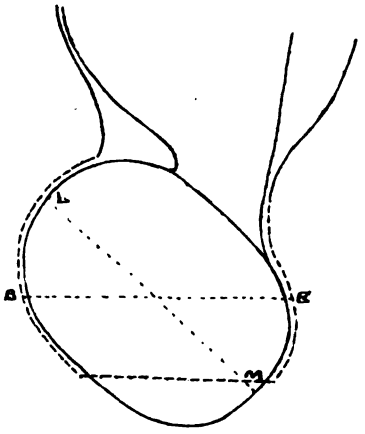


FIG. 6.

favorable to flexion of the head. This contractile force is probably an important factor in causing extension of the head to

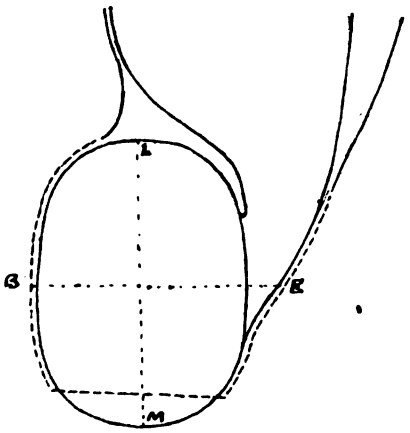


FIG. 7.

recur in the course of a few pains after partial flexion has been brought about by manipulation.

Fig. 7 represents a face presentation with the occiput to the left of the diagram. Here the head is fully extended. The

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contractile force of the uterus holds it in this position, resists attempts at flexion, and causes the head to become again extended after it has been partially flexed.

Fig. 8 represents a breech case in which the body is outside the uterus. The head is flexed; the occiput is to the right of the diagram. The longest diameter, L M, forms a considerable angle with the diameter B E. The contractile force of the uterus tends still further to flex the head and thus assist expulsion. It is evident that the head will, as a rule, be flexed in breech cases if the labor is so conducted that the *contracting* uterus is always in contact with the head. It is also evident that following the head down with the hands and thus keeping

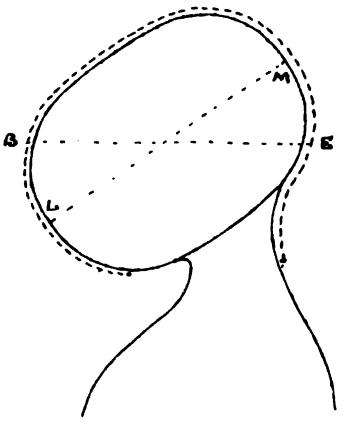


Fig. 8.

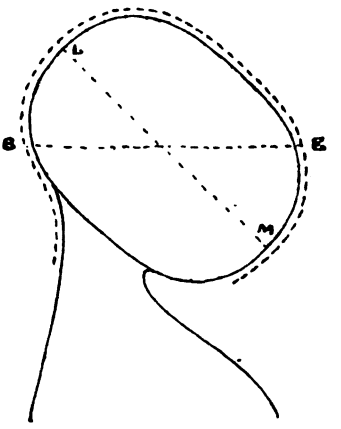


Fig. 9.

the uterus in contact with the head is entirely different from having the uterus *contracting* upon the child's head.

Fig. 9 represents a breech case with the head extended and the body expelled. The occiput is to the right of the diagram. Here the longest diameter, L M, of the extended head forms a large angle with the diameter B E. The contractile force of the uterus will tend still further to extend the head and will resist attempts to flex it. As this condition of the head is usually produced by such rapid withdrawal of the child that the uterus does not contract upon the head, the *immediate* attempts which are made to flex the head will not be resisted by this contractile force. Friction and manipulation of the uterus in these cases will cause the uterus to contract upon the head and thus offer an obstacle to flexion.

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THE PRESERVATION OF THE HYMEN.

BY

HOWARD A. KELLY, M.D.,

Baltimore.

(With four illustrations.)

In Celsus' "De Medicina,"[1] written about the time of Christ, in the chapter on calculi, after declaring that small calculi may escape spontaneously through the shorter and more relaxed urethra, he says that in most cases it will be necessary to apply the same methods of hooking the calculus down and holding it against the neck of the bladder while incising, as in men, but he adds the caution that in the virgin the finger must be introduced per anum, as in the male, while in married women it may be introduced into the vagina.

Severin Pineau, in his work written at the end of the sixteenth century on the signs of virginity, quotes the ancients as his authority for the dictum, "it is criminal to rupture the hymen" ("magnum est crimen perrumpere virginis hymen").

And such has been the attitude of the profession through all the centuries of the past; honorable men have ever carefully guarded as sacred the rights and the interests of the young women who have trusted their persons to their professional care, and the barrier which Nature has erected at the vaginal introitus as the sole *prima facie* evidence of virginity has been preserved intact.

I wish now to urge, in the first place, that it has remained for our day and generation, at a time when a study of the diseases of women has become a fashion, for practitioners of medicine to ruthlessly disregard all moral considerations and make digital examinations of young women with pelvic pains at the menstrual period, or those presenting any abnormality in the menstrual flow or complaining of a leucorrhea.

I know not how else to characterize this *cacoëthes examinandi*, this reckless habit of investigating the sexual organs of young women, than as a species of rape.

[1] "Sed in virgini subjici in anum digiti, tanquam masculo; mulieri, per naturale ejus debent."

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I know, for example, of a large institution in our city entrusted with the education of young women from all parts of the country. In numerous instances young girls with purely functional dysmenorrhea are taken to a physician, who examines them, inserts specula, and institutes treatments where, as I have had occasion to verify, there is actually no discoverable local disorder whatever.

Other young women are constantly coming to me from a distance with the statement that they have "ovarian disease" or "tubal disease" or "anteflexion of the womb," who are perfectly sound and who ought never to have been examined at all; and I have thus to record in my case book in numerous instances "no pelvic disease" or "metrophobia"—a word I have coined to designate those who are fully assured they have some grave "womb trouble" but are notwithstanding perfectly sound.

Aside from all the hospital cases I have seen, I find in my private case book the records of 28 cases with no pelvic disease out of a total of 550 in all, about 5 per cent.

While male physicians are great offenders in this respect, many of the women who practise medicine are far worse; indeed, they often seem to possess no conscience whatever in dealing with these sacred interests of their own sex.

A young woman with a natural sense of shame, but utterly guileless of any knowledge of anatomy, feels that it is easier for her to speak of her pelvic discomforts to one of her own sex, but the woman doctor (with many noble and conspicuous exceptions, I am happy to say) then feels, on her part, that it is necessary, in order to make a complete investigation of every case, to inspect the genitals and to insert her finger into the vagina; she generally ends by putting in a speculum, too, and tampons, and so begins a never-ending course of so-called "treatments," during which the natural ups and downs of health encourage the trusting victim to think at first that the "treatments" are benefiting her, and then, when the pains recur, that there surely is something serious at fault, and so it continues for years. Sooner or later, in many cases, an infection is introduced, and from having no disease at all she is inoculated with a salpingitis, and she is fortunate, finally, if she escapes a radical operation removing her uterine tubes and her ovaries. The records of this country within the past twenty years could show, I verily believe, thousands of such victims, at first unnecessarily insulted, and then robbed of their

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distinctive organs of sex for imaginary ailments or diseases acquired.

Such is the character of this evil; of its extent no one can do more than roughly estimate. My own experience leads me to conclude that these vicious practices are both general throughout our country, and that they affect our young-womanhood to the extent of inflicting an unnecessary injury upon many thousands yearly.

What is the remedy?

First, there is no remedy where the man or the woman doctor does not possess a high moral sense of the obligation which rests upon him to respect the rights of every woman who comes to him as much as he would if she were his own daughter or his sister.

This obligation is not lessened, nay, it is heightened, by the fact that the confiding patient makes no effort to defend herself in her utter ignorance of the simplest anatomical facts; she, as a rule, has not the vague idea of the effects of a local examination.

Second, the general practitioner who has not been specially trained in gynecological examinations should never undertake to make one in a young girl, except under the most stringent circumstances.

If she has a large pelvic growth, that fact will be more evident upon palpating and inspecting the lower abdomen. If she has some minor pelvic ailment he will not detect it, and in nineteen cases out of twenty he will mistake normal but sensitive organs for the various diseases he has been reading most about.

Third, if the patient actually does have any form of pelvic disease and needs medical care, she can only be intelligently and properly treated locally by a specialist.

Fourth, if the general practitioner is sometimes at fault, the sin far oftener lies at the door of the *quasi*-specialist who knows nothing of gynecology as a science and who examines and discovers an ailment in every inquiring female. Of these frauds, most of all, beware; they are the plague spots in the profession.

Fifth, dysmenorrhea only calls for a local examination when it is aggravated and persistent and seriously interferes with the health, and the same may be said of excessive and protracted menstruation.

Sixth, I have to urge as a corollary to the foregoing that in

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case an examination is actually necessary, it must be made by one who is thoroughly competent to decide at once whether or not there is any disease present, and who will be able to proceed at once to do all that may be required to relieve it. By dilating a cervix, or rupturing a large Graafian-follicle cyst, or breaking up adhesions, oftentimes all can be done at once which it is possible to do at all, and the patient will be spared the distress of useless and endless so-called "treatments," which consist in the applications of drugs to the vaginal walls or to the cervix, anatomical structures distant from and quite distinct from the supposedly affected organs.

The next capital point I would urge is that there are satisfactory methods of examining young women which need shock no sensibilities and which inflict no injury upon any organ.

In the first place, if the patient has not been examined and treated before and an examination is necessary, it is my invariable practice to propose to do this *under complete anesthesia*, in this way securing a perfect relaxation, with every facility for making the minutest investigation which it is possible to make, short of actual inspection through an abdominal incision. The anesthetic obviates the inevitable resistance of the abdominal walls, and the examination leaves behind it no disagreeable memories.

In the second place, when the patient is anesthetized *the examination must be conducted through the rectum.* The cervix can be easily palpated through the recto-vaginal walls; and as for the body of the uterus, the ovaries, and the tubes, they cannot be clearly palpated in any other way. The rectal examination is therefore not only to be recommended because it spares the hymen, but because *it is actually indispensable to a thorough investigation.*

I have shown on another occasion that the most minute examination may be made by the rectum if the pelvic organs are first skeletonized by putting the patient in the knee-breast position to let in the air and so getting rid of the intestines. After doing this the examination is conducted in the dorsal position. If the finger is not more than 6.5 centimetres in circumference, it may often be inserted into the vagina, slowly and with extreme care, without rupturing the hymen; this is, however, not a good rule, for the tactile sense of many men seems to be so blunt that there is no appreciation of resistance when delicate structures are being investigated, and harm is done unawares.

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In the third place, if it is necessary to dilate and to curette the uterus, this may be done by introducing a finger into the rectum and locating the cervix, and then introducing a pair of tenaculum forceps into the vagina and carefully opening them, and catching the cervix and drawing it down to the outlet, where it may then be dilated and curetted, in many cases, without injuring the hymen.

In the fourth place, the cervix and the vagina may be inspected and treated through one of a series of specula which I have devised for this purpose, with the patient in the knee-chest posture and the vagina distended with air. These specula are cylindrical, like my vesical specula, but they have a shorter tube and are cut obliquely on the end, so as to do away with the necessity of using an obturator; the longest side, 6 centimetres in length, is on the same side with the long handle; the short side measures 5.6 millimetres in length. They vary in calibre from 8 to 18 millimetres.

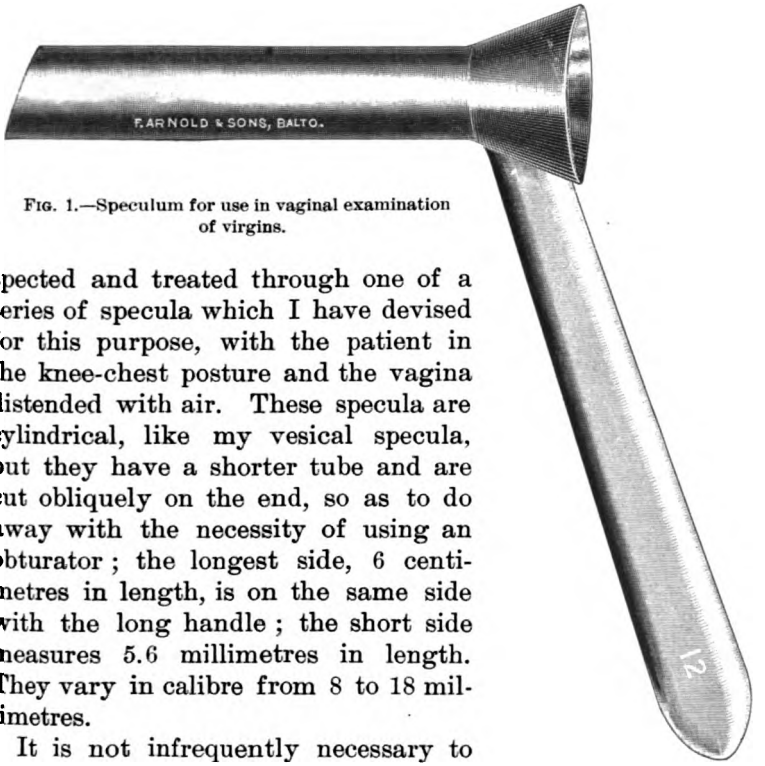


FIG. 1.—Speculum for use in vaginal examination of virgins.

It is not infrequently necessary to examine little children, it may be not more than 2 or 3 years old, for leucorrhea or gonorrhea; I am not aware that this has ever been attempted, and yet it can be done perfectly with one of these small specula, through which I have been able to inspect the entire vagina and the diminutive cervix.

If it is desirable to secure secretions from the upper vagina or from the cervix uncontaminated by the secretions carried in from the exterior by an ordinary speculum, it may be done in

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this way, for the instrument only enters the vaginal orifice and does not even touch the upper vagina.

Fifthly, if treatments are necessary they may be readily and harmlessly carried out through a No. 10 or 12 or larger speculum.

Solutions of nitrate of silver may be applied, as I have done, by means of an applicator to the vagina of a little child suf-

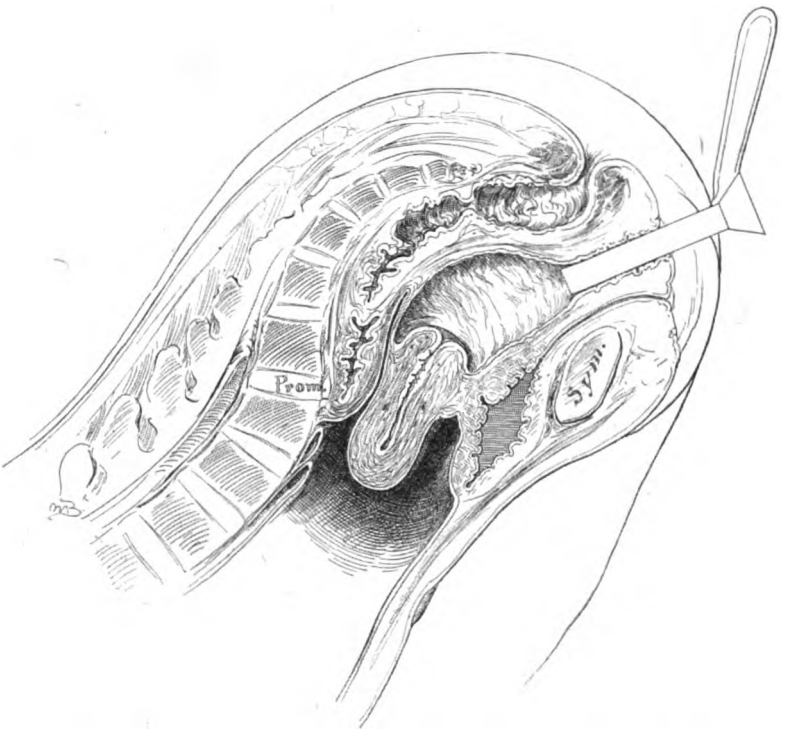


FIG. 2.—Showing speculum in place and vagina distended by air. Patient in knee-chest position.

fering from gonorrhea, just as easily as in an adult woman through a Sims speculum.

Sixthly, in an adult it may even be possible to remove a tumor, as I had occasion to do November 3, 1897. A young woman with an intact hymen had a mucous polyp, about 4 centimetres long and 12 millimetres in diameter, hanging out of the cervix, which I removed in the following manner without any injury to the hymen:

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A cylindrical speculum 18 millimetres in diameter was inserted, and the polyp, seen at the end of the speculum, was drawn into its lumen and held by a pair of rat-tooth forceps, while a catgut ligature was tied in a loop around the forceps and car-



FIG. 3.

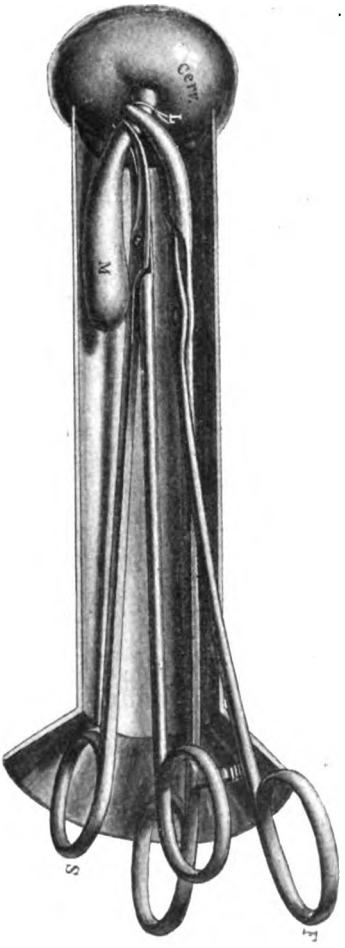


FIG. 4.

FIGS. 3 AND 4.—Removal of a mucous polyp in a virgin through a small cylindrical speculum. (Natural size.)

ried down over the tumor and well up to the cervix, and tied around the pedicle of the tumor by means of a cotton and gauze packer which is pronged at the end and so affords a point of counter-resistance, pushing one end of the ligature up toward

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the vaginal vault, while the other end was pulled down in the opposite direction, as shown in the figure.

Another knot made this secure, and the tumor was then grasped just below the ligature to avoid cutting too close to it, and amputated with a delicate pair of scissors and removed.

The patient, who had had constant hemorrhages, recovered promptly, has no consciousness of what has been done, and has no demonstrable physical sign that she has ever had a gynecological ailment or an examination.

1418 EUTAW PLACE.

SOME REMARKS UPON CONSERVATIVE SURGERY OF THE UTERINE APPENDAGES.[1]

BY

A. PALMER DUDLEY, M.D.,

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(With two illustrations.)

MY object in choosing this subject of "Conservative Surgery upon the Uterine Appendages" for a short paper for this meeting is twofold: First, to answer some criticisms that have lately been made upon my work in this direction, and, secondly, because for years I have been deeply interested in the work of attempting to save portions of these organs and restore them to proper usefulness, and I desire that the members of this Association should know the results of my work. If we hastily review the history of what is commonly called modern gynecology, dating from the early work of Sims to the present time, I think we shall be able to aptly apply the recommendations set forth in the address of Mr. Sinclair (president of the Obstetrical Section of the British Medical Meeting held in Canada this year) with respect to the reforms becoming necessary in modern obstetrics; they are so justly applicable to our own specialty. I mean to say that, judging from my own experience, the pendulum has swung too far, and with the aid

[1] Read before the New York State Medical Association.

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of our modern antiseptic methods men in our specialty have in the past removed many organs from the pelves of women that should never have been taken from them. The discussion before the British Medical Association this year made it sufficiently clear to all that the operation of hysterectomy for pelvic disease has become nearly perfect, and it also developed the fact that the operation was to a certain extent stimulated by fashion. The French surgeons particularly have become so expert in doing the operation that ere long they will innocently become a large factor in the decrease of the population by diminishing possible chances of child-bearing. In order to confine myself strictly to the title of the paper, let me do so by asking a question, and, so far as I am able, give my answer.

To what extent can we do conservative surgery upon the uterine appendages with safety to the patient?

In my attempt to answer such question I will simply give you the results of my own experience. Having long years ago seen the removal of what I considered healthy and fat ovaries, so far as the eye could tell, for the relief of apparently trivial pelvic disease, and the patients recover, also various forms of surgery upon the uterus itself with the same good results, I determined, if possible, should a case present, to test the recuperative power of the ovary. On October 18, 1887, I did my first operation of this kind. It was upon a single woman who had been under my care for months, suffering from retrodisplacement complicated by pelvic adhesions about uterus, tubes, and ovaries. I made a laparatomy, found both tubes and ovaries buried up by plastic exudations, and a pyosalpinx on the left side. I was obliged to dig the appendages out of a bed of surrounding adhesions. I removed the left appendage, and although the right tube was twice the normal size and the ovary full of cysts, some of them as large as a filbert, I returned the appendage, after treating the cysts in the ovary in a manner yet to be described, and then closed the abdomen, knowing full well that I was experimenting with the case. The woman made an uninterrupted recovery and afterward married and became a mother. I have already reported her case in full in a previous article.

My second case begged that her ovaries might not be sacrificed. I gave her my promise and did the work, removing a portion of the ovary and bringing the remainder together with fine silk suture. This patient made an uninterrupted recovery,

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and a few months later became pregnant. Fearing the pregnancy would undo what I had done for her, in spite of my advice to the contrary she induced an abortion upon herself by injecting hot water into the uterus.

Such cases as I am speaking of are not of every-day occurrence. and it was some time before I secured another case. Time will not allow me to give you a description of the many cases I have had since. Suffice it to say that up to the present time I have records of 88 cases where I have removed portions of tubes and ovaries and returned the remaining portion of the appendages to the pelvis.

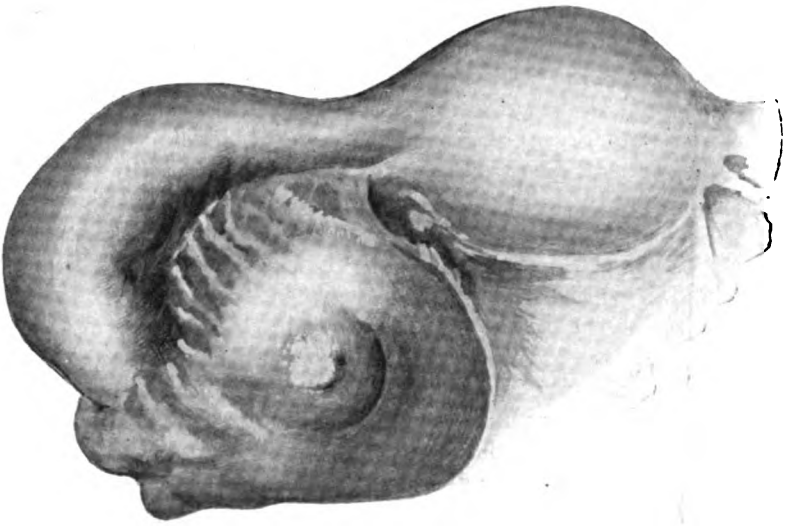


FIG 1.—Posterior view of left appendages before operation.

I have not been able to trace them all in their after-history, but I have secured the records of 14 cases where a pregnancy has followed, and of these 14, 8 have borne children, 4 have aborted from one cause or another, and 2 are still pregnant. In the whole 88 cases I have never seen inflammation follow in the appendage that could be detected by careful bimanual touch, except in 1 case which was from gonorrheal origin. In many of these cases I have cut the ovary completely in two longitudinally, removed cysts from its centre, and sewed it up again. I have never treated the ovary with the cautery, as described and recommended by Pozzi, because I think it is an

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unnecessarily harsh treatment in cystic degeneration of the ovary, and that just as good results can be obtained by puncturing the cysts with a needle. Scratching the cyst sac sufficiently to cause it to fill with fresh blood, and the latter becoming organized, will obliterate the sac. I also believe it impossible for the operator to tell just how far beyond the cyst sac the healthy ovarian structures are destroyed by the action of the heat.

In doing any form of ovarian surgery, if we intend to save any of the organ, we should save all we possibly can.

I have cross-sectioned it and sewed it together; I have taken V-shaped pieces out of it and closed the remainder, and for

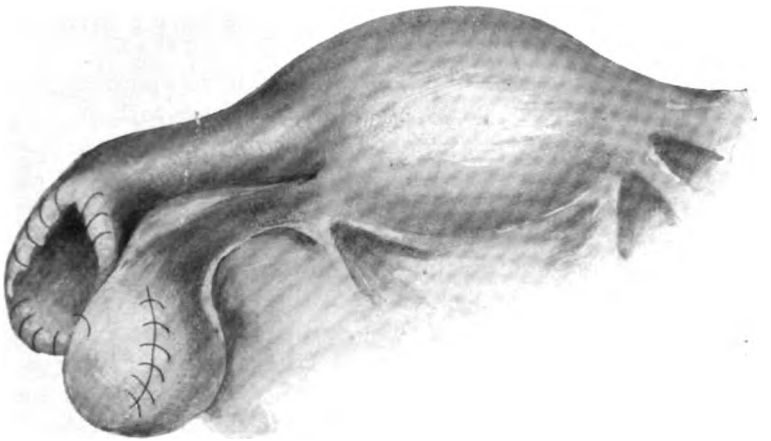


FIG. 2.—Posterior view of left appendages after operation.

cystic degeneration I have punctured it through and through, in many cases many times; I have even removed almost the entire ovary, leaving a portion. possibly not larger than a pea, and fastened that to the extremity of the tube.

I will say that in all this work I have never used animal suture of any kind, but always the finest embroidery silk, sterilized, and applied with a cambric needle. I have curetted the surface of the ovary with a sharp curette, and touched it with pure carbolic acid. I have removed pus from the ovary, and left the remaining apparently healthy portion, and, as I previously said, have seen but the one case of inflammation follow that I could make out by bimanual exploration.

In the treatment of the Fallopian tube I can also say that I

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have treated it in a conservative manner for many forms of disease. I have opened up an occluded tube in many cases, but when doing so I always treated it in the following manner:

I make a phimosis operation on the remaining healthy portion by slitting it up a half-inch or more on the upper surface, rolling out the cut surfaces as we would the prepuce, and then with fine silk and running suture stitching the mucous lining of the tube to its peritoneal covering all about, in this way preventing reocclusion of the tube and allowing the ciliated epithelium to act in the place of the fimbriæ which have been removed (see Figs. 1 and 2). In these cases I invariably fasten the remaining portion of the ovary to the tip of the remaining portion of the tube by fine silk suture. In none of the cases so far that I have selected for this kind of work have I had cause to regret it.

I have even gone further than this. I have operated upon tubes distended with pus, washed out the latter with an aseptic solution, after having passed a fine probe through the tube into the uterus, and reopened the tubo-uterine stricture, and had my patients recover without the first signs of peritonitis. I qualify this statement with the one that I never treat a tube thus affected in such a manner if there be any odor to the pus showing internal gonorrheal or septic inflammation.

I have on my records several cases of pyosalpinx treated in such a manner whose after-history I have carefully followed up to the present time, and as yet they have had no recurrence of inflammation and have menstruated regularly every month without trouble.

My reasons for having devoted myself to such work are :

1. That I believe that no surgeon can anticipate just what effect an early induction of the menopause by ovariotomy will have upon a woman's nervous system. Some it will affect in one way, some in another ; some will put on flesh, some will lose it ; some will be cheerful and contented, others will be melancholy. In many cases the domestic relations are destroyed by the knowledge of the husband or wife that she is not a perfect woman, and that what every woman should have preserved, if possible, she has been deprived of.

They all suffer more or less from hot flashes, and in many cases the latter become a very troublesome condition, the heart palpitation and hot flash creating a constant fear of future evil. Many times in the past I have had my patients return to me and complain that these nervous symptoms were dreaded much

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more than the condition for which I did the operation, while expressing a regret that they had ever undergone the same.

Another reason for my work is a belief that pelvic surgery should not be compassed about by the opinion even of a majority of the profession; that hysterectomy is the last resort in order to effect a cure. We must progress, if possible, for the design of surgery from the beginning was to save and not to mutilate the human body. This should be constantly borne in mind by every fair-minded surgeon, and I predict that if any advance is made during the next ten years it will be along this line of conservative surgery upon the appendages.

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THE ANATOMICAL POINTS INVOLVED IN EMMET'S METHOD OF OPERATING UPON THE PERINEUM IN LACERATION OF THE SECOND DEGREE.[1]

BY

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THE operation of perineorrhaphy is the result of a process of evolution. Originally it was thought essential only to unite the external tissues at the seat of the laceration. This procedure being fraught with imperfect results, it was deemed necessary to bring the muscular elements in the lacerated tissues of the pelvic floor together. Finally Emmet announced that success could be attained only by uniting the fibres of the pelvic fascia. Notwithstanding the empirical results of the various methods which have at last developed the operation of to-day, the anatomical basis of the subject is imperfectly understood. Success lies most probably in the appreciation of the well-recognized importance of using deep sutures. If the sutures include sufficient of the recto-vaginal septum, or if they are introduced deep enough to make forward traction, or if they include the sulcus on either side of the bulging posterior vaginal wall, the operation will be successful.

In Emmet's original paper[2] he advanced the first anatomical theory bearing upon the origin and repair of perineal lacera-

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, October 21, 1897.

[2] Transactions of the American Gynecological Society, 1883.

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tions. His views are to-day the basis of our knowledge of the subject. He asserted that the pelvic fascia becomes lacerated by the forward passage of the child's head during parturition, and that the tone of the posterior vaginal wall is destroyed owing to the separation of the fascia from its connection with the vaginal outlet.

Emmet's statement in the above form, however, requires a little closer study. In the first place, the fascial layers of the perineum are of importance only as they serve as a means of support and attachment for the muscles lying between them. In this way the levator ani muscle, which we may consider the most important muscular structure of the pelvic floor, serves, by means of its fascial attachment, as a support both to the posterior vaginal wall and to the pelvic floor. The muscle, acting as a broad, gutter-shaped band attached on either side of the pelvis, is invested posteriorly, or on its pelvic surface, by the recto-vesical layer of the pelvic fascia, and anteriorly, or on its perineal surface, by the perineal layer of the obturato-coccygeus fascia. In a perineum that has been severely stretched during parturition these leaflets of fascia have been drawn forward and torn, so that the fibres of the muscle between them have been separated. Emmet's theory, therefore, must not cover only fascial detachment, for the latter cannot occur without the separation of muscle. Leaving for the time being the further study of the origin of the loss of tone, it remains to describe the lesion itself.

The muscles of the pelvic floor are divided into two layers: the deeper layer, made up of the levator ani muscle, which descends in the shape of a cone from the sides of the pelvis to the point of attachment of the more superficial layer in the centre of the perineum; and the superficial layer, made up of, first, the transverse muscles of the perineum, which stretch from the tuberosities of the ischium and are inserted in the centre of the perineum, and, secondly, of the muscles which surround the vaginal outlet. These muscles are attached to the various fascial layers as follows, naming them from above downward, or rather from the pelvic surface inwardly to the perineal surface outwardly: First, as stated above, the recto-vesical layer of the pelvic fascia, which is deflected from the sides of the pelvis over the *pelvic* surface of the levator ani muscle. Second, the perineal layer of the obturato-coccygeus fascia, which is deflected from the sides of the pelvis over the *perineal* surface of the levator ani muscle. Third, the anterior

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and posterior aponeuroses of the perineal septum, which include the deep transverse perineal muscle. Fourth, the two layers of the superficial perineal fascia, including the superficial transverse and the bulbo-cavernosus muscles.

We may divide the pelvic and perineal fasciæ into two sets of layers corresponding to the deep and superficial muscular layers. The deeper fascial layers are united to the more superficial layers in the perineal raphé. The superficial layers stretching forward from a line connecting the tuberosities of the ischia to the pubic rami, shut off the outlet to the pelvis, save at the vulvar opening.

In an extensive laceration of the perineum the muscles which are respectively held between these layers of fasciæ become separated both as to the insertion of their fibres in the centre of the perineum and as to the mutual attachment of the deep and superficial layers at the same point. As a consequence the more superficial muscles are free to retract in the direction of their proximal attachment—namely, away from the centre of the perineum—and the levator ani, which constitutes the deeper layer, is drawn, at the point of laceration of its fibres, outward laterally by the action of the more superficial muscles. It is in this way that the deep furrow or sulcus on either side of the bulging rectocele is formed.

Such being the lesion, we may select a variety of explanations of the effectiveness of operation in such cases. If we follow Emmet we will believe that by denuding an elliptical area on either side, corresponding to the curve of the posterior commissure of the vagina, and within the introitus, and introducing sutures in an antero-posterior direction, we are able to reunite the deeper fascial layer of the perineum to its attachment at the vulvar outlet. If we follow those who assert that restoration of the perineum and support of the posterior vaginal wall is only accomplished by bringing the divided fibres of the levator ani muscle together, we will look for our result in re-establishing the function of this muscle and thus drawing the posterior wall of the vagina upward and replacing the rectum in its normal position. It is then a question, not of restoring the fascial attachments, but of enabling the muscle to become again an "elevating muscle."

Whichever of these theories may be correct, it is certainly true that Emmet's procedure is more effective than the use of transverse sutures in the posterior wall, unless these sutures are introduced deeply into the sulci on either side. It is further

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impossible to believe that in introducing these sutures we are able to bring the separated fibres of the levator ani muscle together, so that the retracted fibres of one side may be united to those of the opposite side in front of the rectocele. It is in this connection that most writers are misleading when they speak of the function of the levator ani muscle and the lesions that follow its laceration. For the muscle acts, not by the attachment of the fibres of one side with those of the other, but by means of the insertion of the fibres at a common point of attachment—namely, in the centre of the perineum. Emmet's theory is based, not upon the occurrence of a laceration of this supposed muscular band which is stretched across in front of the rectum, but upon the fact that the fascial attachments of the muscle are so stretched and torn that the deflected fibres of the muscle covering the rectum are deprived of their function, allowing a forward bulging of the rectal wall.

The contention as to whether the sutures are to be introduced transversely, or antero-posteriorly as recommended by Emmet, is also misleading; for all operators have shown that sutures introduced from side to side, including the edges of a broadly denuded area in the posterior vaginal wall, will dip down into the sulcus on either side, so that when traction is made upon them the deeper structures are drawn forward as in the case of the antero-posterior suturing. Thus the logic of Emmet's position—namely, that a successful operation on the perineum for the correction of rectocele must draw the pelvic fascia forward—is practically demonstrated by the method of those whose theory of operation is based upon the existence of a separation of the lateral fibres of the divided muscle. The ease with which we fall into the distinction just referred to—namely, the division of the fascia as opposed to the division of the muscle—shows the error of our general conception of the subject; that is, the tendency to overlook the anatomical union between the muscle and the layers of fascia that ensheath it. It is impossible for the fascia to be stretched and torn and the muscle to escape.

A further study of the subject reveals a point of interest in connection with the ultimate disappearance of the lateral sulci in a successful operation. If any one will study the position of the sutures as introduced by Emmet, he will observe that, although they include the sulcus on either side, they are, when tied, not at right angles to the sulcus. Thus the original sulcus on either side does not correspond in direction to the closed line of incision left by the completed operation; the sulcus

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originally extending in a longitudinal direction within the vagina, and the line of incision extending transversely to the vagina. This obliteration of the sulci is accomplished by a drawing forward of the posterior vaginal wall and the closure of the introitus vaginæ—a result spoken of by Emmet as the drawing of the "purse string" at the line of attachment of the pelvic fascia with the perineal fascia at the vaginal outlet. Our study of the muscular action and fascial attachment of the muscles of the pelvic floor suggests a somewhat fuller explanation than this. It is true that a successful result in operation depends upon the restoration of the continuity of the deep and superficial fascial layers of the pelvic floor, but only in that such restoration re-establishes the action of the severed muscles.

The anatomical explanation of the success of Emmet's method, where the stitches are introduced so as to include the sulcus on either side, lies in the fact that they catch up the severed ends of the anterior fibres of the levator ani muscle, together with the fascial coverings of the muscle, and unite these fibres with those attached to that part of the pelvic fascia deflected to the anterior rectal and posterior vaginal walls. In other words, the sutures anchor the fibres at their point of normal attachment. When traction is made upon the stitches thus introduced, the structures which they include are drawn forward and brought in apposition with the perineal fascia and septum, which include the superficial layer of muscles, or those muscles which, when normally attached to their point of medial insertion—namely, to the centre of the perineum—assist in drawing the perineum upward and forward.

The objects, therefore, to be attained in the operation are: first, the union of the fibres of the levator ani muscle with their proper perineal attachment; second, the restoration of the fascial covering of this muscle; third, the union of the two layers of fascia, the pelvic and perineal, at their points of mutual attachment—namely, in the centre of the perineum; fourth, the restoration of the action of the transverse muscles of the perineum, which have hitherto drawn upon the severed fibres of the levator ani muscle in a lateral direction, flattening the calibre of the vagina and causing it to gape. Thus with the upward and forward action of both sets of muscles—that is, of the levator ani and of the superficial muscles—restored, we have a restoration of the tone of the pelvic floor together with a closure of the vaginal outlet.

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THE SURGICAL TREATMENT OF FIBROID TUMORS OF THE UTERUS.[1]

BY

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THE surgical procedures which may be adopted in this class of pelvic tumors are *curettage, division of the uterine arteries, myomectomy*, both vaginal and abdominal, and *hysterectomy.*

Since electricity affords only symptomatic relief in a certain class of cases, and this is not always permanent, its use may be limited to inoperable cases, classing under this head cases where the constitutional condition or cardiac disease prohibits or where the patient refuses to consent to operation. The prejudice against operation for uterine fibroids is being rapidly removed, first, because the mortality of total removal has been greatly reduced; and, second, because the feasibility of more conservative procedures has been demonstrated. For instance, an extensive myomectomy, where the uterus is the seat of numerous fibroids, is successfully done to-day and the uterus saved, whereas only a few years back the whole organ was removed in such cases. Again, it has been shown that complete or almost complete atrophy of certain small tumors of this character may be brought about by permanent obliteration of the uterine arteries, which diminishes their nutrition. The possibility of conservative surgery is appreciated because the evil results of some of our older methods is pretty generally understood. Hence I say the prejudice against operative interference is being removed because surgery is less radical and the mortality of radical operations is reduced.

Of the operations enumerated above curettage may be regarded as a palliative measure only, to be employed for controlling temporarily the hemorrhage, which is often profuse and persistent and which so rapidly exhausts the strength of the patient. It is to be employed also to overcome the obstinate endometritis when any procedure less radical than hyste-

[1] Read by invitation before the Mississippi Valley Medical Association, October 5 to 8, 1897.

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rectomy is done, such as division of the uterine arteries or myomectomy. It is a secondary but nevertheless an important auxiliary measure which should never, in my opinion, be neglected. It is only a temporary expedient against hemorrhagic endometritis, because the endometrium is rapidly reproduced, and, since the same causes which produced this condition still exist and have not been removed, the hemorrhage must sooner or later recur.

Of the method of performing this operation, which is generally regarded simple, much may be said to advantage. It involves more risk in the fibroid uterus, because the walls may be quite thin in places, or soft and spongy and easily perforated. Again, owing to the irregularity of the cavity it is quite difficult in some cases to make the curettage thorough. The ordinary dilator employed for dilating the cervix is frequently inadequate because it is not sufficiently rigid, especially if the growth is near or encroaches upon the cervix, and because the blades of the instrument are too short to effect dilatation sufficiently far up. Great care should be exercised also to avoid exerting too much force or allowing the instrument to slip and produce laceration.

The ordinary curette is likewise inadequate in some cases, because it is too short and does not reach far enough up into the cavity, and it has not sufficient rigidity to enable the operator to remove all that is necessary.

The irrigator ordinarily employed for washing out after the curettage is also too short to reach the full length of the cavity, and the tubing employed for conducting the irrigating fluid is too small to furnish a stream of sufficient force and volume even if the reservoir is placed high.

For curettage of the fibroid uterus, then, special instruments are required, and more than usual care is necessary both for safety and thoroughness.

In all of these cases the curettage should be followed by a copious irrigation, with a double-current irrigator, of a hot one per cent solution of lysol to remove clots and débris, and after this a solution of iodine should be used through the irrigator. The strength of this solution may vary with the necessities of the case—from half to an ounce of the compound tincture of iodine to a pint of water. In my opinion this is the only way iodine should be applied to the interior of the uterus.

The operation for ligature of the uterine arteries for the purpose of producing atrophy by depriving these tumors of suffi-

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cient circulation and nutrition has been successful when it has been done in appropriate cases and when obliteration of the vessels has been made certain by dividing them. I have pointed out elsewhere the fallacy of depending upon simple ligation to effect permanent obliteration of these vessels, chiefly because it is difficult to isolate them so that the ligature will destroy the artery, and if a mass of tissue is included in the ligature with the vessel it shrinks in consequence of the compression and the ligature loosens. Consequently the circulation may be, and frequently is, restored. This would, of course, fail to accomplish the purpose of the operation.

The technique of this operation is as follows, viz.: First the uterus is curetted, and if hemorrhage has been a symptom it is irrigated with a solution of iodine. Then a traction ligature is passed through both lips of the cervix, by means of which it is drawn well down and over to one side, the patient being in the lithotomy position with a short-bladed perineal retractor in the vagina. A semicircular incision is made through the vaginal roof on one side at the cervico-vaginal fold, and the base of the broad ligament is exposed by careful dissection with the fingers, hugging the side of the uterus. When the pulsation of the uterine artery can be detected, a stout silk ligature is passed around it by means of a specially devised aneurism needle or ligature carrier, and tied. Especial care is necessary to avoid including the ureter in the ligature, as at this point it is only half an inch from the uterus. The tissue between the ligature and the uterus is then divided with the scissors, and the uterine end of the artery is picked up with a pressure clamp and tied with silk or catgut. The same maneuvre is repeated on the other side. The vaginal incisions are closed by continuous catgut suture and a loose dressing of gauze placed in the vagina. Of course strict aseptic measures should be carried out, both in the preparation for and during the progress of the operation.

The limitation of this operation to such tumors as may be influenced by cutting off the supply of the uterine arteries is important, and upon this depends the success which may follow. It would be unreasonable to expect very large tumors which fill or nearly fill the abdominal cavity to be influenced materially by this procedure, since the other sources of blood supply are greatly increased as the tumor develops out of the pelvic cavity. The uterine arteries are not the chief source of nutrition in these cases, as they are when these tumors are smaller.

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The other main channels of circulation, the ovarian arteries and round-ligament arteries, are not only greatly increased in size, but these tumors are frequently fed by new vessels established through adhesions with adjacent organs and structures. When, however, the tumor is small or has not developed above the level of the umbilicus, the uterine arteries furnish the chief blood supply. Likewise when a subperitoneal tumor springs from or near the fundus it gets its blood supply chiefly from the ovarian arteries, and cutting off the uterine arteries cannot be expected to influence the growth materially in these cases.

This operation should therefore be limited to small interstitial growths which have not developed beyond the umbilicus, and small subperitoneal tumors which spring from the wall of the uterus below the fundus. When the operation has been confined within these limits, and when I have made permanent obliteration certain by dividing the arteries, complete or almost complete atrophy of the tumor has followed.

Myomectomy ranks deservedly first in the order of conservative operations for uterine fibroids, being radical in its conception, though it preserves both uterus and ovaries. Until quite recently this operation had a very limited application and its possibilities were not fully appreciated. For some time past pedunculated tumors have been removed, and occasionally one or two small fibroid nodules projecting above the surface of an otherwise healthy uterus have been also removed by enucleation; but where there were numerous interstitial masses, or even one large tumor, the uterus was invariably sacrificed together with the appendages. Even now, though the successful possibility of an extensive myomectomy has been satisfactorily demonstrated, there are many uteri being sacrificed every day for small tumors which might easily be removed without the uterus.

It is possible to remove successfully not only one or two but numerous interstitial fibroids, large and small, situated deeply in the uterine wall, shelling them out of their bed, closing the wound afterward by suture, and leaving the greatly hypertrophied uterus to regain its normal condition. The operation is one which requires much more operative skill than hysterectomy, and where it is extensive it is fraught with greater danger on account of hemorrhage and the increased risk of sepsis. Hence the strictest aseptic technique must be carried out. The ligatures and sutures must be applied so as to control absolutely all bleeding and close the wounds in the uterine wall

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perfectly, so as to avoid dead spaces where blood or serum may collect and undergo decomposition. There is practically no limit to the number of tumors which may be removed in this manner, and though the uterus may afterward resemble a battle-scarred veteran, it is saved to the patient and will subsequently recover and may be a useful organ.

A few points in the technique may be useful to those who are not familiar with the operation. The abdomen is opened by an incision sufficiently large to deliver the uterus with tumors out of the abdomen, when this is possible; the peritoneal cavity is protected by a sterilized rubber sheet or flat gauze pads, and when much bleeding is anticipated a rubber ligature is placed around the cervix. When the uterus cannot be lifted out of the abdominal cavity the intestines must be protected by gauze pads, which wall them off from the field of operation. Sometimes the Trendelenburg position is a decided advantage. In removing pedunculated fibroids a flap is made on either side of the pedicle at its base of attachment to the uterine wall. These flaps are stripped down and the pedicle severed by a V-shaped incision below the level of the surface of the uterine wall. Any redundancy of the flaps is trimmed off afterward. Bleeding vessels are controlled by pressure forceps, and, when necessary, a ligature, but both are to be avoided when possible. Free bleeding will be controlled frequently by the sutures employed for closing the wound, which may be applied immediately before the removal of other masses is proceeded with, or the wound may be packed tightly with sterilized gauze until all the tumors are removed. In removing sessile and deep interstitial growths the uterine wall over the centre is split and the capsule of the tumor is laid open; then the tumor is shelled out of its bed with the fingers or the handle of the scalpel. It is important before closing the wound to trim out all loose tissue which would subsequently slough. Perfect coaptation is absolutely essential, hence deep buried sutures, preferably of fine chromicized catgut, should be employed. Lembert sutures of the same material or fine silk are used for the outer layer closing the peritoneal surface.

Two points must ever be kept in mind, the liability to hemorrhage and sepsis, and every precaution should be taken to avoid both. With care, however, the chance of either may be reduced to a minimum.

Usually this operation is best executed through an abdominal incision, as it affords freer access and permits more accurate

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work. But when there are only one or two small nodules projecting from the uterine wall low down near the cervix, their removal may be accomplished through a vaginal incision either anteriorly or posteriorly to the cervix, according to their location.

Myomectomy, then, should be the operation of election in all cases where it is possible without entailing too great a risk. So strongly am I convinced of the possibilities of this operation that I believe it is applicable in seventy-five per cent of the cases where now hysterectomy is generally done.

Submucous fibroids projecting into the uterine cavity may usually be removed through the cervix, but it may prove a tedious and difficult operation, unless the tumor is pedunculated or detached, on account of the difficulty in dilating the canal sufficiently to permit free access into the uterine cavity. When these tumors are very large, however, and their development causes the uterus to project well up into the abdominal cavity, a correct diagnosis of their exact character is not always easy, especially if the cervix is small and the canal is contracted. If a correct diagnosis can be made in these cases, it is not always possible to empty the uterus through the vagina. It is possible and feasible, however, in such cases to empty the uterus through an abdominal incision, as in Cesarean section, and leave the uterus behind, if the walls have not undergone degeneration, thus saving it. If, then, upon opening the abdomen, either for the purpose of a myomectomy or a hysterectomy, it is found that the tumor is not in the wall of the uterus but within the cavity, the uterus should be delivered through the abdominal incision, a rubber ligature placed around the cervix, the abdominal cavity protected by a rubber dam or pads of sterilized gauze, and an incision made in the anterior uterine wall from the fundus to near the attachment of the bladder opening, into the cavity. If the tumor is pedunculated it is easily removed by severing the pedicle near its attachment. If it is broadly attached to the uterine wall the mucous membrane, with the capsule, is split and the tumor shelled out. Active bleeding is controlled by ligature or by sutures which compress and coaptate the raw surfaces. After the uterus has been emptied the cavity is washed out, if necessary, and a gauze drain or rubber drainage tube is carried down through the cervix into the vagina. The incision in the uterine wall is closed by deep interrupted sutures of chromicized catgut which include the muscular layers down to but not the mucous mem-

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brane. Done in this manner there is absolutely no chance of infecting the peritoneal cavity and there is little or no blood lost. Though this operation may involve more risk than a hysterectomy in the same condition, it is fully justified, since it preserves the uterus, which may subsequently become a useful, functionating organ.

Of hysterectomy there is little to be said except as to its limitation. I cannot now believe that vaginal hysterectomy for fibroid tumors is necessary or justifiable, since tumors which are sufficiently small to permit of their removal in this manner either need not be interfered with, or, if they are causing trouble, atrophy may be secured by dividing the uterine arteries; or, if the condition is not appropriate for this operation, the abdomen may be opened, a myomectomy done, and the uterus saved. The conscientious surgeon would surely not sacrifice the uterus, to say nothing of the unnecessary risk to which the patient would be submitted, when these other channels are open to him. Abdominal hysterectomy for uterine fibroids is ever a justifiable operation in those conditions where these other operations are not feasible, and especially when the tumor is so large as to cause great inconvenience from its size or where the tumor has undergone degeneration or the appendages are hopelessly diseased.

The technique of this operation has been thoroughly discussed and is familiar to us all. Likewise the *pros* and *cons* of supravaginal amputation and total extirpation have been gone over again and again, and there would be nothing gained by repetition here, since the adaptability of either method is pretty generally understood.

108 WEST SEVENTY-THIRD STREET.

THE INFANTILE UTERUS.[1]

BY

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WE have heard and read so much about the "infantile uterus" that your essayist has desired to ascertain just how much definite information we possess in regard to it, and just how

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far such an organ is responsible for many of the diseases of women.

It is, of course, impossible for us not to have read all that Tait and Johnstone have said about the subject, and I shall unhesitatingly accord them the credit of original investigation and of promulgating the information acquired; though Simpson deserves credit for priority, so far as recognition is concerned, as he wrote the first paper on the subject.

It was my original intention to include in this paper the whole subject of uterine malformations, but the work was of such vast proportions that it was impossible in a short time to arrange the matter for condensed report; consequently your attention is invited to consider the small, rudimentary, or infantile uterus of writers upon uterine pathology. It is best, however, to include all undersized uteri which cause dysmenorrhea, amenorrhea, abortion, etc., or any results due to imperfect development. Our aim then will, in the present paper, be more to discuss the practical value of the present knowledge of the subject than to advance new theories in reference to the development or lack of development of the uterus.

Relative Importance.—Some authors of gynecological text books do not consider the subject of sufficient importance to merit a place in their works. Of those on my shelves, Winckel, Skene, Emmet, "American System of Gynecology," Goodell, Thomas, Mundé, Keating and Coe say nothing, while Tait, Edis, Pozzi, Garrigues, and "American Text Book of Gynecology" have given the subject due consideration.

The "infantile uterus" under discussion is merely a persistence of the normal uterus of infancy. It is, therefore, long and comparatively slender, with very small body and long neck. Its walls are thin, and its cervix slender and conical in form. The whole length is from one to two or two and a half inches. The ovaries are generally present, but often rudimentary. The vagina in such cases is usually short, narrow, and but poorly developed, although your essayist has seen just the reverse, or, in other words, perfectly normal vagina and genitalia, the vagina and external parts being well developed and normal in appearance.

There is a difference in opinion about the functions of these imperfect organs. Authors declare that amenorrhea is the rule, but Mr. Tait expressly mentions the painful menstruation which these unfortunates experience. Among others, Edis claims that amenorrhea is the rule or almost constant symptom.

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He claims, however, that conception does occur, and, as we all agree, abortions are frequent.

Characteristics.—According to Tait and Johnstone the above definition is not exact, and they declare that the size of the uterus alone is not the only characteristic of the infantile uterus, but that the embryonic features persist which render its functions difficult or impossible. From my search among authors I find some scepticism about this difference, and for practical purposes we may consider it an arrest of development in infancy. The question must arise, How are we to determine when a uterus has within it the so-called characteristic features of the infantile organ? Given a small uterus which menstruates with difficulty, which has the conical cervix and other characteristics, we are told that such is the "infantile uterus." But, on the other hand, we see uteri, just as small, with similar characteristics of apparently imperfect development, yet without painful, or indeed it may be with no, menstruation or symptoms. Johnstone has made very broad claims, which, however beautiful and forceful, have not yet convinced us all of their correctness. We do not admit Tait's conclusions that a lack of development, sufficient to cause "troublesome menstruation" or be a "bar to pregnancy," means an entirely different class of cases, for they are in size nicely graded from a mere rudiment into the fully developed organ. The distinctions drawn by Johnstone are clever and ingenious, so far as the relations existing between the body and cervix are concerned anatomically and perhaps physiologically. His ideas have been so well disseminated that I need only quote a few passages to serve my purpose.

First, as to the development of the body and cervix, he says: "The relation of the cervix to the body is almost that of the pylorus to the stomach. It not only supports and protects the cavity from undue intrusion, but retains its contents and assists at the proper time in their expulsion. This idea is borne out physiologically not only by a different blood supply, a different nerve supply, a difference in direction and quality of its muscular fibre, but also by a most radical difference in the mucous membrane."

Let it be taken for granted that Johnstone is right about these distinctions, it is still a distinction without a difference between the arrest of development of the uterus in infancy and continuing through the active menstrual period, and the ordinary undersized uterus so commonly seen by every one. We do

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not, however, admit that such marked differences occur. For instance, the blood supply of the cervix is not so different, after all. After ligating one set of vessels the other insures abundant circulation. The same may be said of the nerve, although Johnstone claims to have discovered a special nerve supply. As to the muscular defects constituting a cause of the flexions and dysmenorrhea and cervical lacerations, we doubt not the wisdom and truth of the claims of those who attribute these conditions largely to lack of development. Finally, your essayist calls attention to Johnstone's claims above noted as proof of this position, for he says that the cervical lacerations are consequent upon this condition of arrest of development, as lacerations are a result of labor; hence these infantile uteri menstruate and permit conception to occur.

We think that all of these nice distinctions show merely gradations in this lack of development, and hence we assume that Pozzi is correct when he says: "A subtle distinction has been drawn between the fetal type, or that which represents the last stage of the embryonic evolution, with the mucous folds extending even into the fundus of the organ, and the infantile type, where the organ resembles the uterus of the new-born child, with the folds only in the cervix. It is but a refinement of anatomy, which deserves mention merely; from all other points of view the two varieties are identical. The characteristic of both is the unequal development of the cervix and the fundus, reproducing the fetal type."

Those who advocate this theory assert that the various flexions are a result of this arrest of development. It is true beyond doubt that the two conditions are often associated. The same may be said of other displacements. It is an almost daily experience to find the virgin uterus displaced, and it is often far too small to become displaced merely by its own weight.

Illustrative Cases. CASE I.—Mrs. ——, age 30, married six years, sterile. Is a splendid type of perfect womanhood in every particular save that she has small ovaries and a rudimentary uterus. She has rarely menstruated, but has not had dysmenorrhea. Her only reason for consulting physicians has been the hope of curing her sterility. Her devoted husband has made no complaint against her, and declares that she is all that a wife should be, save that she has never conceived. On examination under ether two small ovaries were found and the characteristic uterus above mentioned. She had been encour-

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aged by various physicians to hope for cure through electricity and the intrauterine stem. The intrauterine faradic current was applied assiduously, without apparently good result. Six years have passed since I first examined this patient. She is in all respects in perfect health at present, but without menstruation. This case is one of several who have not suffered from dysmenorrhea or other pain.

CASE II.—Miss ——. A young lady of perfect development in every way, with the exception of a retroflexed infantile uterus. Age 17 when first seen. Has hysteria and spinal irritation, scanty, painful menstruation, and is a typical case as described by Tait and Johnstone. Her menses did not appear until about a year before the first examination. Her physician sent her from a female college in Virginia for examination under anesthesia. Her history seemed to warrant this course, and I made the examination accordingly, with the result above mentioned. Her ovaries are apparently normal and her uterus situated quite high in the pelvis. All attempts to replace this uterus have failed, as we might expect would be the case. It admits the sound for one and one-quarter inches. Nearly one year since she was treated at her home for cerebro-spinal meningitis. This attack was only a grave form of hysteria, and she was brought to me some months since for treatment. A thorough application of the rest treatment and massage has completely restored her to health, save that her menses are still scanty and irregular, although not very painful.

CASE III.—Mrs. ——, age 25. Known to the writer as a slender, delicate child, with strong intellectual traits, a student, and not inclined to active exercise. She married at 22, when I learned for the first time that menstruation was painful, scanty, irregular, often absent for many months, and that her development was far from satisfactory. A very unhappy post-nuptial life demanded an investigation, which revealed a state of affairs which, if known before marriage, might have caused any physician to hesitate before advising matrimony. Her uterus was normal in its position, was very small, with the characteristic cervix, and was strongly anteflexed. The cavity was not measured with the sound, but the size of the organ was not much greater than in the previous case. It was predicted without hesitation that if conception occurred an abortion would result, and this actually occurred. The labor was what might be called a miniature one. It occurred at the fifth month, and the small vagina was apparently tested to its greatest capacity.

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Dr. W. S. Dixon was associated with me in the case. It was with great surprise, therefore, that in about two years after this miscarriage she was safely delivered by another physician of a child weighing eight pounds.

This case is mentioned because it illustrates some important features. This girl, when married at 22 years, had the development of external and internal generative organs of a child of 10 or 12 years, at least that of a girl before puberty. Rapid development must have occurred after marriage, which must have stimulated the growth of organs which, but for this, might never have attained the capacity necessary for procreation. This case is an illustration of Dr. H. C. Wood's idea that age as reckoned by years is not always exact. Some children are very late in their development, and many persons grow old before their time.

The three cases mentioned serve to illustrate my subject, and, while they are by no means all the cases observed, may at least serve as a basis for further discussion.

Diagnosis.—The recognition of these cases should be easy enough where a careful examination is made, but there is no positive symptom or set of symptoms which may be called pathognomonic. It is therefore possible, indeed I fear it is the rule. for nearly all of these poor patients to suffer many years before they reach the menopause, or until some relief is given by appropriate treatment.

I do not wish to have it understood that all women with a rudimentary uterus necessarily suffer. A case has been cited to prove the contrary, but it is possible that a rudimentary uterus may make no attempt, or but slight attempt, at menstruation, while a large uterus, yet undeveloped, may permit menstruation, though with pain, and, if conception occur, promptly abort it, with the various evil results which are only too well known. We constantly see cases of severe dysmenorrhea in uteri perhaps one-half normal size.

The undeveloped uterus is the cause of a majority of the pelvic diseases of young women, and by far the most prolific of all causes save the infectious diseases. There can be no doubt as to the uterine origin of very much of the pain of dysmenorrhea. Not that patients do not suffer from ovarian dysmenorrhea, but that they frequently suffer from uterine pain is unquestionable. We believe this is not so much due to a contraction of the muscular fibres of the cervix as to a want of development. Moreover, the pain in many instances is a

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hyperesthesia of the mucous membrane of the inner os and body of the uterus. A large number of these women with small, undeveloped uteri will have a most exceedingly sensitive endometrium.

One of the cases reported shows the patient (a neurasthenic) a victim of grave hysteria. A search of the literature reveals several cases reported who were victims of hysteria, and yet without any uterus or possessing only rudimentary uteri. One of these cases is reported by A. Puech in the *Gaz. des Obstet.*, Paris, 1872, 1317, "De l'Hystérie dans les cas d'Absence de l'Utérus." Another by Lenepven, *Gaz. d. Hop.*, Paris, 1839, 3, s. i., 117, "Cas d'Arrêt de Développement de l'Utérus." The first-named author naïvely calls attention to the mistake, so long made, of attributing the neurosis hysteria to a uterine origin.

Results of Labor in Undeveloped Uteri.—It is almost impossible that labor at term can occur in an infantile uterus without producing a laceration of the cervix. I am fully convinced that they all tear, and if the lacerations are not found subsequently it is because Nature has kindly interposed and produced a result which in other cases is left to the surgeon. It is not necessary to say that similar accidents occur at the perineum, for the vagina, if undeveloped, will generally tear before yielding to the advancing head.

The Sexual System.—As far as my experience goes, there is but little positive information to be gained by inquiries made in reference to the sexual instinct in women with imperfectly developed uteri, just as we find it difficult to obtain such information from those who have undergone complete salpingo-oöphorectomy. I remember a case in the practice of Dr. W. T. Howard, who had a rudimentary uterus with absence of the vagina, yet had the strongest sexual desire. One of the cases reported herewith is also a case in point.

Treatment.—Mr. Tait says he at first benefited his patients by the use of the galvanic stem, but discontinued its use when he found that many cases of pyosalpinx originated in this way, for which he was compelled to operate. Surely electricity ought to benefit these patients, and I doubt not more benefit has been derived from this agent than from any other. In addition to this, however, my practice has been to stimulate the growth of the uterus by the occasional passage of the large steel sound, and at the same time by means of massage, and, if necessary, the rest treatment, to remove the neurasthenia

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which is an almost constantly present symptom. I never employ extreme dilatation in these cases.

The advisability of matrimony is often a perplexing subject. When a woman at 20 to 25 has an undeveloped uterus, it cannot have a more powerful incentive to growth than sexual stimulation. Several cases present themselves to my mind in which the final results were most happy. Yet, if called upon for an opinion, the physician should assume no responsibility beyond the correct statement of the possibilities of the case.

Finally, the writer's experience justifies the statement that but few if any of these cases require an oöphorectomy for the establishment of the induced menopause.

In conclusion, the writer acknowledges his inability to throw any new light upon a question so important to a large proportion of womankind. The subject is one of far greater importance than would appear at first thought. The eagerness to provide remedies, surgical or otherwise, should not prevent due investigation into the cause which lies at the root of the whole matter. It is possible that the abnormal conditions mentioned in this paper are a result of abstruse phenomena, occurring during a process of evolution, which we are not capable of appreciating. Certain it is that we as yet have no preventive remedy for these evils which, in the present state of society, can be applied. It is, however, important to observe these cases as they occur in our experience, and to render them all the relief in our power, which, in by far the majority of cases, is such as to make them fairly comfortable, if not perfectly well.

1449 RHODE ISLAND AVENUE.

A CASE OF ADENOMYOMA OF THE ROUND LIGAMENT.

BY

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WHILST even simple myoma of the round ligament is a relatively rare affection, adenomyoma seems to be extremely rare, as apparently only two well-authenticated cases exist in the literature. It therefore seems worth while to report the following case, that of an adenomyoma originating in all probability

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from the round ligament. The case occurred in the practice of Dr. A. Vander Veer, to whom I am indebted for the clinical history and the specimen.

The main points in the clinical history are as follows: Mrs. G. R. M., age 47. The family history is negative. The patient has had one child. Menstruation has always been regular and natural. Twenty three years ago a growth first appeared in the right groin; at that time it was in the form of two distinct enlargements, each about the size of a kernel of corn. These gradually united into one mass, which grew very slowly. During the last three years there has been a perceptible but slight increase. For the past six months the growth has been rapid. The growth has never been painful, even at the menstrual period. At the time of the operation there was a growth the size of a hen's egg situated in the right inguinal region a little external to the inguinal canal and nearly midway between the external and internal rings. The removal of the growth was done under cocaine, the deep attachments of the tumor being of especial interest. In his report Dr. Vander Veer says: "The deep attachments of the tumor were such as to attract my attention, as I was obliged to expose the deeper layers of the fascia, and I believed at the time that it originated from the inguinal canal itself." The patient made a good recovery and has been perfectly well since.

Macroscopic Appearances.—The specimen consists of a nodule the size of a hen's egg, on one side of which is an area of thin, normal-looking skin. The nodule lies just beneath the skin, and is surrounded by a quantity of normal-looking fat, to which its thin capsule is adherent externally. The tumor is firm in consistence, and on section has a grayish-white color, with here and there a pin-point to pin-head-sized area of hemorrhage. The cut surface has in places a homogeneous appearance, but for the most part is made up of bands of closely interlacing fibres, and here resembles an ordinary uterine myoma. Here and there throughout the tumor are seen small openings, which are apparently cross sections of blood vessels. No connection with any cord-like structure is to be seen.

Microscopic Appearances.—The tumor is mainly composed of bundles of non-striped muscle running in various directions, some of the muscle cells being cut in the longitudinal or oblique direction, whilst many others are cut transversely. In the latter instance the cell substance is often seen to be swollen

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and to present a vacuolated appearance, and in some places numbers of nuclei have disappeared. The same changes can be seen, though less distinctly, in the places where the fibres have been cut longitudinally. In one or two places adjacent to the skin surface the tumor substance has lost its nuclei and takes the eosin stain strongly. In these areas a considerable number of polynuclear leucocytes are seen infiltrating the necrotic substance. The number of vessels in the tumor is very large, and this is especially true of the section which contains the glandular elements. In this section there are collected, in a fairly well circumscribed area, a number of large-sized arteries and a corresponding number of veins. Nowhere else does a similar collection of such large blood vessels occur, though there is an abundant blood supply in all parts of the tumor. The smaller vessels throughout the tumor show very marked hyaline degeneration of their walls, and this is particularly well seen in specimens stained by Van Gieson's method.

The glandular elements were only found in one section of the tumor, that already described as containing a collection of quite large blood vessels. These elements appear as round or oval cross sections of glands, or occasionally as dichotomously branched gland spaces. The glands are not surrounded by a definite stroma like the uterine glands, but lie immediately adjacent to the muscle fibres. In places there seem to be circular bands of fibres surrounding the glands, but close examination shows that such bundles are made up of cells exactly resembling the muscle cells, and, furthermore, in places they can be traced out into the tumor substance with which they blend. The cells lining the gland spaces are sometimes one row, sometimes two rows deep; they are large and cylindrical, and have oval, darkly staining. vesicular nuclei. The protoplasm is moderate in amount, and in a few places is seen to be distinctly ciliated. At one point in the immediate neighborhood of the gland structures there is to be seen an irregular space filled with epithelial cells which resemble those lining the glands. In an adjacent field are two small cysts, one of which is partly filled up with cells similar to those lining the glands, the other being lined on one side by these cells. The cysts appear empty, the contents either having been fluid or else having been removed in the manipulation of the tumor. No structures resembling the pseudo-glomeruli of Von Recklinghausen were made out. Neither the cells lining the gland spaces nor those in

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the immediate neighborhood showed any signs of pigmentation.

The two cases most resembling the one at present under consideration are those of Cullen and Martin.

In Cullen's case a nodule had existed for eight years in the right inguinal region, giving rise to severe pain, which was most marked at the menstrual periods. The tumor was surrounded by fat as in our case, but retained a distinct attachment to the round ligament. The histological examination showed gland-like structures throughout the growth, which, as far as the gland cells were concerned, seemed similar to those occurring in our case. They differed in that the glands were generally surrounded by a definite stroma similar to the stroma which surrounds normal uterine glands. Cullen, however, states that in places the glands were found directly between the muscle fibres. No cyst-like cavities were found in this case. In Martin's case the tumor was situated in the pelvic cavity and was attached to the left round ligament. It was for the most part cystic, the contents of the cyst being a thin, chocolate-colored fluid. The histological examination, made by Pommorsky, showed that the wall of the cyst was made up of detritus, fat, and cholesterin, but there were present in the pedicle of the tumor small intercommunicating cyst cavities, filled with a clear fluid, and one of them lined with low cylindrical, ciliated epithelium.

Any case of cystic tumor of the round ligament might belong to this group, and Cullen has collected several such cases, which are reviewed in his article. In some of these the cysts were either dilated lymph spaces or due to degeneration of the tumor, and in other cases only the gross appearances were reported and it was impossible to pass a definite opinion upon the nature of the growth. Besides the cystic tumors described by Aschenbourn, Coulson, Duplay, and Leopold, and commented on by Cullen, we find that Duplay cites another case, that of Paletta. The tumor in this case was the size of a walnut and situated in the upper part of the right labium majus; it was cystic and filled with a clear, limpid fluid. No microscopical examination was made. The tumor had distinct attachments to the round ligament.

The most interesting question arising in connection with these tumors concerns the origin of the gland structures. They are probably similar to the gland structures found in some forms of adenomyoma of the uterus and described by Von Recklinghausen as probably originating from misplaced remains of the

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Wolffian bodies. Cullen, in his article, suggests, from the resemblance of the glandular structures in his tumor to the normal uterine glands, that they may result from abnormal embryonic deposit of some part of Müller's duct.

In our case we are dealing with a tumor situated external to the inguinal canal but attached to its floor. There is no definite attachment to the round ligament, but this has been the case in several examples of myoma of the round ligament, as, for example, some of those reported by Roustan. The histological structure and situation almost preclude its origin from anything but the round ligament, and the sharp localization of the gland structures in the neighborhood of a sharply localized group of blood vessels indicates the probability of a pedicle having at one time existed at this point. The glandular structures found in the tumor resemble more those seen in Cullen's case than those described by Von Recklinghausen as occurring in adenomyoma of the uterus. They differ from those seen in Cullen's case only in the absence of the surrounding stroma, which was also absent in a few places in the tumor which he described.

The glandular elements in our tumor certainly do not fulfil all the requirements laid down by Von Recklinghausen as indicating an origin from the Wolffian body. The appearances described by him are: 1. The presence of narrow canals or collections of tubes, or wider ampulla like openings, lined with ciliated epithelium. 2. A cellular basement substance surrounding the glands. 3. The presence of a straw-yellow pigment in the gland openings. 4. The presence of the so-called pseudo-glomeruli. The gland elements in our cases, especially the cross sections, very closely resembled cross sections of uterine glands without the usual stroma, and this would suggest, as in Cullen's case, a possible origin from transplanted portions of Müller's duct. The chronicity of the growth and its general characteristics would lead one to place it among the non-malignant neoplasms—a position which Von Recklinghausen and Cullen have also accorded to this class of growths. From a developmental standpoint this case seems to bridge the gap between Cullen's case, in which only gland elements were present, and Martin's, in which cyst formation played the principal rôle.

14 JAY STREET.

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THREE CASES OF HYSTERECTOMY:

TWO FOR FIBROID, AND ONE IN THE CASE OF A VERY EXTENSIVE PAROVARIAN CYST OF LONG STANDING [1]

BY
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IN reporting the cases of hysterectomy, all of which were operated upon in the German Hospital, I will first relate the histories, then discuss the points of interest connected therewith.

Mrs. M. J., colored, æt. 42, married, was admitted August 30, 1897, for multiple uterine fibroids and double pyosalpinx complicated with a general peritonitis of the most active type. The menstruation was regular but painful during the last seven years; the pain was most pronounced two or three days before each menstrual period. Abdominal palpation negative on account of the distension and pain due to the peritonitis. Vaginal, confirmed by rectal, examination disclosed uterine enlargement and tender masses to either side. It may be remarked that the vaginal examination was particularly unsatisfactory—first, on account of the tenderness to slightest pressure, due to peritonitis; and, secondly, to the very deep vagina. Patient's abdomen had been blistered, partly forbidding immediate operation. The chief factor which argued against prompt operation was the severity of the peritonitis. Treatment of peritonitis: saline purgation, abdomen packed in ice, and hypodermatics of strychnine.

Recovery from peritonitis. Operation October 4th. Supravaginal hysterectomy with removal of pus tubes. Recovery prompt.

Mrs. M. S., colored, age 39 years, married, was admitted September 28, 1897. Six months ago the patient began to

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, October 21, 1897.

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notice that her abdomen was getting quite large. Two months ago she came to the German Hospital Dispensary, where she was under treatment for some time. Her condition becoming worse, abdomen growing larger, and experiencing some difficulty in getting around, she applied for admission. The usual menstrual derangement consequent upon this condition was not present. Examination showed a hard mass located in lower and middle abdomen, which could be readily palpated. By vaginal and rectal examination the mass was equally well felt and made out as a uterine growth. Patient also presented a small umbilical hernia. The latter was in reality a ventral hernia, as it only included the upper margin of the umbilical opening. October 4, 1897, operation. Supravaginal hysterectomy. The incision necessary for proper exposure was prolonged upward above the umbilicus, which permitted the radical cure of the hernia in suturing the wound. Recovery uneventful.

Mrs. F. L., age 36 years, native of Denmark, was admitted October 6, 1897, when the following history was elicited: Mother of one child. No miscarriages. Injured during parturition; soft parts repaired. Claims never to have been well since the birth of the child. Ten years ago she noticed a small swelling in right ovarian region, which was not painful till recently. Metrorrhagia. During the past two years the swelling increased rapidly, with pain referred to right leg. Examination upon admission revealed the presence of a large abdominal growth occupying lower, middle, and upper right abdomen. Swelling non-fluctuating. Vaginal and rectal examination demonstrated the tumor to be connected with the uterus and occupying the pelvic cavity. Operation. Tumor found to be an intraligamentary cyst, uniformly adherent, occupying the region referred to. The right ureter from bladder to pelvis thoroughly incorporated in wall of cyst. Ureter dissected out with scalpel and forceps. Upper portion of ureter, as well as kidney, distended—the latter to the extent of producing cystic kidney. It was necessary to tap the cyst at two or more points to favor its rapid enucleation. Abdomen thoroughly flushed. Drainage. Recovery uninterrupted.

The reports of the preceding three cases of abdominal hysterectomy are interesting from one of several standpoints. First, that abdominal hysterectomy, while an operation of choice in the majority of instances, may become one of necessity. In the case of Mrs. M. S. (large fibroid) and of Mrs. M. J. (mul-

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tiple fibroids and pyosalpinx) hysterectomy was the operation of choice, while in the case of Mrs. F. L. it became an operation of necessity.

In the case of the large fibroid there was nothing of unusual interest other than that the patient was very corpulent, weighing two hundred and seventy pounds. We will all agree that abdominal operations are always more difficult in corpulent individuals than in the thin or moderately fat. The case of multiple fibroid and double pyosalpinx was interesting, first, in that the patient was admitted with the most active type of peritonitis; second, the conditions usually to be made out in cases of this character by vaginal touch could not be satisfactorily made on account of the depth of the vagina, the height of the uterus, and the extreme sensitiveness due to the peritoneal inflammation. Upon recovery from the peritonitis the subjective symptoms were, however, nearly as clear as usual. Owing to the corpulency of the patient it was with difficulty that the growth could be detected by abdominal palpation. The case of parovarian cyst, Mrs. F. L., was interesting, first, from the fact that the woman presented the subjective evidences of fibroid; second, that a mass continuous with the uterus occupied the pelvis, as revealed by vaginal, rectal, and bimanual examination; third, that the cyst presented such thick walls; fourth, that it was universally adherent; fifth, that it involved the entire ureter; sixth, that the long-continued pressure upon the ureter had resulted in a cystic condition of the right kidney, as well as in partial obliteration of the ureter; seventh, the length of time the growth had been present; eighth, the history of a number of attacks of peritonitis, from all of which recovery followed; ninth, the presence of a cystic kidney, which was made very accessible owing to the extensive dissection required in the enucleation of the cyst, which to my mind, however, did not suggest removal. It was evident that this condition of the kidney had existed for some time. Therefore I felt that the operation was already severe enough without doing anything further. Again, the patient evidently having had this condition of the kidney for a long time, in the presence of so large an adherent cyst, made it evident that she would get along equally well with it, the cyst being removed. As to the question of the propriety of interfering with the affected kidney ultimately, this will depend upon circumstances. It is my opinion that frequently, under circumstances like these, meddlesome surgery is done.

In this connection it will not be out of place to make a few

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remarks upon the treatment of peritonitis—the condition for which one of the three cases was admitted to the hospital. Assuming that we all agree that peritonitis is infectious, the treatment which has given me the best results, and to my mind the most rational, is that of saline purgation, packing the abdomen in ice (which may be used in the shape of ice bags, or the rubber coil carrying ice water), hypodermatic injections of strychnia at regular intervals, as little opium as possible (which drug I seldom use in such cases, the ice and purgation sufficing to relieve the pain—the former, I believe, being the chief factor in this respect). I am convinced, from a large experience in this class of cases, that ice alters the condition which tends to favor bacterial infection. Therefore it is both a scientific as well as a practical agent. In the presence of persistent sick stomach, or to the extent of not allowing of the administration of salines, calomel in one-half grain doses, placed upon the tongue at intervals of two hours, being careful, of course, to avoid salivation. Persistent sick stomach (not regurgitant vomiting) is benefited by the application of a small fly blister to the epigastrium. Absolutely no nourishment should be given by the mouth, the stomach being allowed to rest, but nutritious enemata containing whiskey given at regular intervals.

The practice of blistering the abdomen in cases of peritonitis should be discountenanced. It not only does no good, but often forces us to defer operation when it would be otherwise indicated. This holds true, to a limited extent, with turpentine stupes, mustard plasters, and ointments used for either their counter-irritant or alterative effects.

TWO CASES OF PELVIC INFLAMMATORY DISEASE IN WHICH THE USE OF MURPHY'S BUTTON BECAME NECESSARY; A CASE OF OVARIAN SARCOMA IN A YOUNG GIRL; AN OVARIAN PAPILLOMATOUS CYST.[1]

BY

J. M. BALDY, M.D.,

Philadelphia.

J. T., æt. 22, white, American, gave a history of having noticed tumor of abdomen for past two years, slowly growing larger, but not painful. Menstruation every three weeks, last-

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, October 21, 1897.

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ing four or five days, excessively painful. Vaginal examination revealed the uterus well anterior, movable; tumor plainly felt to the right of the median line.

Operation by median incision revealed a large cyst in left broad ligament, with several smaller cysts, with fresh adhesions to the intestines, peritoneum, and omentum, with small cyst of right ovary; both ovaries and tubes were removed. There had evidently been an acute attack of peritonitis. The organs were glued together by adhesions. There was one particularly bad point of adhesion on mesentery. The enucleation was proceeded with by drawing up tumor, pushing down adjacent tissues, and in that way pushing ureter and everything off tumor. By that method of enucleation I have never torn a ureter, but have seen this happen by other methods. I find very little trouble with the proceeding I have described. I have torn a ureter, but it was in a pelvic inflammatory case.

In finishing the operation and toilet of peritoneum I found the point of adhesion on mesentery so deep and gangrenous that I was afraid to leave it for fear the bowel would slough away. Therefore I resected a V-shaped piece of bowel, inserted Murphy's button, ligated mesenteric attachment, and whip-stitched with catgut. The button did not appear for forty-seven days. During this time I had her X-rayed twice and was not able to find button either time. I supposed that probably she had passed it and the nurse thrown away the stool. (I think that same button has gone through from ten to twelve different patients safely.)

The second patient, L. T., age 32; married; no children; miscarriages uncertain. She was a chronic inflammatory case; had been a chronic drunkard. She told me in the course of talking to her that she had lived principally on whiskey and anything she could get to drink for two weeks. There was a history of having been sick for three weeks. The acute history, the severe shooting pain, rise of temperature in evening, profuse perspiration, demanded operation.

The abdomen was opened, and it was one of the very bad pelvic inflammatory conditions in which everything is one mass and it is doubtful for a time whether you will be able to finish your operation. It soon became evident that the bladder would be opened. I went ahead, however, feeling I could repair that organ. It was absolutely necessary to take the chance if the operation was to be completed, and the bladder was opened to the extent of two inches. Before proceeding

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further the rent was carefully closed—that is, as carefully as you could close such a thickened, inflammatory bladder wall. The bowels, of course, were in pretty much the same condition. They were separated, and I noted there were several points on the bowels which were bad, ugly, gangrenous places, and they were put to one side for future attention. The pelvis was cleared by hysterectomy; there were pus tubes, typical ovarian abscesses, and a large, thickened uterus completely stripped of its peritoneal surface. The whole pelvis was cleared thoroughly and attention turned to the vermiform appendix, which was involved in the mass and which it was necessary to remove; it was amputated, the cut edges turned into the bowel. It was found by pressure on the bowel at several points by the handle of the scalpel that fluid feces oozed out from several of the gangrenous points. After a quick attempt to close these points with sutures it was seen that every stitch pulled out, and it was impossible to gain much in this way. Seven inches of the bowel was resected and a Murphy button was used. The button was passed fifteen days after operation. The patient's temperature during that time was the typical up-and-down temperature of sepsis, as you see by the chart. It became gradually better, and within a few weeks became normal. The woman had delirium tremens, or alcoholic mania, or something; anyhow, we had to strap her in bed and keep her strapped from the second night after operation. Every time she had any opportunity at all she tore off the dressings and bindings. The sixth day she removed the adhesive straps, and the next thing we knew she was out of bed. For the first four days the bowels were opened with enemata. The first day the enemata did not act very well, the fifth day there was a very good result; for the next two weeks the bowels were opened entirely by enemata. Three or four days after the Murphy button put in an appearance laxatives were used. The woman was practically in a condition of alcoholic delirium for something like ten days. We have all had these cases before and know exactly what the doctor and nurse have to put up with. The woman made a remarkably easy recovery. I doubt if she will ever be free from pain. There were so many adhesions to break up, everything was so matted together, there must of necessity be more or less pain in the future, and some day she will fall into somebody's hands who will make her an illustration of the unfortunate after-effects of an abdominal operation. This is a sample of the fault of that character of criticism, in

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not knowing the character of the operation the first operator was compelled to do to save that patient's life. She has gained in weight some twenty or thirty pounds, looks in a remarkable condition to what she was. There seemed little chance of saving her life at the time of operation. Necessarily the operation was prolonged, lasting perhaps one and a half hours.

The third case was a case that in my experience is an exceedingly rare one and it is a rare condition under any circumstances. The patient was a girl of 16 years of age. She was very decidedly anemic and emaciated. The abdomen began to swell four years before. Her parents were exceedingly intelligent people and noticed the swelling, and had repeatedly protested with the attending physician that some serious condition was present, and requested an examination of the girl on account of the swelling in the abdomen. She fell into my hands practically a dying girl; she had gone down into such a state that it was not expected she would live from week to week. However, she rallied, as cancer cases will at times, and the operation was done during this period at the Pennsylvania Hospital.

Operation disclosed ovarian cyst, probably as large as an adult's head. The girl was very emaciated and the tumor showed more prominently than if she had been fleshy. It weighed ten to fifteen pounds, was adherent to all of the omentum, with a number of coils of the bowel. It was one of those tumors that grow up under the sigmoid. The walls were infiltrated probably a quarter of an inch thick.

The patient did very badly for four days; we could hardly get her bowels moved. I was called back from the country to see her, and finally her bowels opened freely, with relief of distension. She was apparently doing well at this time; still I did not believe she would recover, for she had a peculiar restlessness, a tossing back and forth, and a peculiar pinched look. The restlessness got worse, and in three more days the girl died from exhaustion. Her vitality was not sufficient to pull her through.

Clinically it was a malignant tumor, and microscopically it is a specimen of sarcoma. Now here is a large ovarian sarcoma known to exist at 12 years of age.

I would call your attention to some post-mortem statistics by De la Camp in the *Centralblatt für Chirurgie.* In 170,000 cases —this refers to carcinoma—there were about 10,000 malignant lesions, and of these 10,000 there were but 17 under the age

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of 20. Now, my impression is, although I have no such statistics, that sarcoma is a little more frequent than that, but if you double the difference and call it 34 or 50 cases in 10,000 I do not think you would go far from the mark in sarcoma in young women, and for that reason it is an exceedingly interesting and rare specimen. I am very sorry that the tumor itself is lost. After cutting and mounting the section for me the people in charge thought it was all I wanted and threw the tumor away. The specimen as you see it under the microscope shows very clearly that it is not carcinoma. It had exceedingly thick walls, but it was filled with that material you see in malignant cases; you could hardly say what is in it. Certain portions are almost solid. You could dig your finger through it at any point and tear it to pieces. Clinically it was a clear case of malignancy.

The fourth case is one I operated on this morning. It is a beautiful specimen of papillomatous cyst of the ovary. She had abdominal trouble twenty-three years ago; has lately had acute trouble. She did not know there was tumor there. Twenty-three years ago she had some discomfort, but for a considerable number of years she knew there was a tumor there. Lately it had taken on a rapid growth. It is just that character of tumor in which the diagnosis is doubtful in your mind. I have had three recently and was afraid to say what any of them were. If they are solid they are probably malignant. Most of these cases turn out to be malignant when you say: "I am doubtful just what it is, whether it is solid or cystic." There was not an adhesion any place; it contained a thick, dark-brown, chocolate-colored fluid of an ovarian cyst. The walls speak for themselves. It grew down into the broad ligament and I had to enucleate, and after I was through had half a dozen ligatures in place. Fortunately the walls were so thick that it was easy to get under it. We got it out without a single drop of fluid being spilled. I have the complete sac. My experience is that most of these cases get well and stay well. There was a little ascitic fluid in the woman's abdomen. She is a large, stout woman with thick walls, about three inches of fat. It is generally that kind of women who have these tumors.

1722 CHESTNUT STREET.

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EXPERIENCE OF TWO HUNDRED AND FORTY-NINE ABDOMINAL SECTIONS.[1]

BY

A. LAPTHORN SMITH, B.A., M.D., M.R.C.S. ENG.,

Fellow of the American Gynecological Society; Professor of Clinical Gynecology, Bishop's University; Gynecologist to the Montreal Dispensary; Surgeon-in-Chief of the Samaritan Hospital for Women, and Surgeon to the Western Hospital, Montreal.

THE question which stands foremost in the minds of most gynecologists and abdominal surgeons is the great one, What can we do to lower our death rate? The question which is foremost in the mind of the general practitioner before recommending his patient to undergo an operation is, What is the death rate? For it is evident that if the risk of a fatal result is very great he would rarely be justified in advising a patient to take that risk. I say nothing of the patient, whose interest in the matter is greater than any one else's, because she must be guided by what the general and special practitioners advise her to do. To me personally the question of mortality exceeds all others in importance. I have the greatest anxiety that where I can do no good I at least may do no harm. Not that I am oblivious of the other and very important question which should never be lost sight of—namely, the ultimate result of the operation; for it cannot be denied that a certain percentage of those who recover are no better for having run the risk of their lives. On the other hand, it is exceedingly gratifying to see the death rate come down year by year and the percentage of successful results continually increasing; and I can quite understand and appreciate a healthy and friendly rivalry between leading operators all over the world to lower the record of deaths and to raise the percentage, not only of recoveries from the operation, but of cures of the disease for which the operation was performed. It is necessary, however, that statistics of this kind be thoroughly honest, without which they are absolutely devoid of interest. I therefore beg to submit this list of all the abdominal sections performed by me for any cause whatever, with the date of the operation and where per-

[1] Read before the Medico-Chirurgical Society of Montreal, November 12, 1897.

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formed, and the name of the doctor who sent her to me, since November 20, 1895, when I wrote my last report on "Six Years' Experience in Abdominal and Pelvic Surgery," up to October 14, 1897. That report gave details of 143 abdominal sections with 11 deaths, since which date I have performed 106 abdominal sections with 6 deaths, making a total of 249 abdominal sections with 17 deaths, or a mortality of 6¾ per cent for the whole eight years. These 106 laparatomies, which I now report, were performed at the following places :

Private hospital	26,	with 1	death,	or 4	per cent.
Western Hospital	24,	" 2	deaths,	" 8	"
Samaritan Hospital	55,	" 3	"	" 5½	"
Notre Dame Hospital	1,	" 0	"		
Private houses	0,	" 0	"		
Total	106,	" 6	"	" 5¾	"

They were performed by years as follows :

In 1896	60 operations,	with 2 deaths,	or 3⅓	per cent.
In 1897	46 "	" 4 "	" 9	"

Taken all together for the whole eight years there were in :

Private hospital	93 sections,	with 6 deaths	or 6½	per cent.
Samaritan Hospital	80 "	" 4 "	" 5	"
Notre Dame Hospital	1 "	" 0 "		
Western Hospital	66 "	" 6 "	" 9	"
Private houses	7 "	" 1 "	" 12	"
Strong's Hospital	2 "	" 0 "		

The total number of 249 in eight years were performed as follows :

In 1890	4 operations,	with 0 deaths.		
In 1891	8 "	" 1 "	or 12	per cent.
In 1892	12 "	" 2 "	" 17	"
In 1893	23 "	" 3 "	" 13	"
In 1894	39 "	" 3 "	" 8	"
In 1895	57 "	" 2 "	" 3½	"
In 1896	60 "	" 2 "	" 3⅓	"
In 1897	46 "	" 4 "	" 9	"

These 249 abdominal sections were performed for the following reasons and with the following mortality : Removal of large tumors of the kidney by abdominal section 2, and no death ; extrauterine pregnancy 7 and no death ; large ovarian tumors 11, and 2 deaths ; abdominal hysterectomy 14, with 4 deaths ; ventral and umbilical hernia 9, with no death ; obstruction of the bowels 3, with 2 deaths ; general peritonitis following a miscarriage 1, with 1 death ; general tubercular peritonitis 2, with no death ; cancer of both ovaries 1, with no death ; puerperal septicemia 1, with no death ; ruptured pus tube 1, with no death ; Trenholm's operation for removal of appendages for fibroid tumor 7, with 1 death ; pus tubes 62, with 5 deaths ; cystic ovaries and chronically inflamed tubes 36, with 1 death ; hydrosalpinx 8, with no death ; ventrofixation, including in some cases curetting and repair of lacerated cervix and perineum and removal of diseased ovaries and tubes, 99, with 1 death. Making 264 abdominal operations, with 17 deaths ; but as some of the 99 cases of ventrofixation were performed on some of the 62 women with pus tubes, they appear twice.

I opened the abdomen 249 times on 246 women, one of the women having been opened twice on account of obstruction of

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the bowel on the tenth day, and another having been opened three times for a second ovarian tumor and a hernia. To some this number may seem very small, but it must be remembered that a great many of the women with pelvic peritonitis due to pus tubes have declined operation and are being attended by me from time to time for recurring attacks. Sooner or later most of them will decide that it would be better to run their seven or eight per cent of risk and be cured than to endure the severe pain of these recurring attacks. I lay the matter frankly before them, but do not urge them to submit to operation. Then, again, I have under my care a great many other women with chronic inflammation of the ovaries who are willing and even anxious to have their ovaries removed, or to submit to any treatment which promises them relief from their suffering, which I believe is really very great, as the contracting fibrous tissue is constantly compressing the nerve filaments in which these organs are so rich. I have refused to operate in these cases until they have been treated by myself or some other practitioner for at least one year by every other means in our power. Many of these will appear in my next list of abdominal sections. I have notes of 3,800 women who have applied to me at my private office and at the Montreal Dispensary, and about 500 others at the Samaritan and Western Hospitals. So that if I have opened the abdomen only 249 times out of 4,300 cases, surely no one can ever charge me with being a radical laparatomist. I mention this because from time to time I have seen this charge made against gynecologists, and at one time it may have been just; but during the last few years a great change has taken place, until now I really think the pendulum has swung too far in the direction of conservatism. On glancing over the table of deaths by years you will see that the death rate gradually declined from 17 per cent in 1892 to 3½ per cent in 1895 and to 3⅓ per cent in 1896, and increased considerably to 9 per cent in 1897. I explain this increase by the fact that I have operated only on 45 of the most serious cases this year. Thus among my deaths this year was a woman with an enormous fibrocystic tumor, who had been refused by several operators wiser than I, and who died on the table apparently from air getting into the uterine veins, which in her case were larger than the thumb; although there was also considerable hemorrhage from the retraction of one uterine artery within the folds of the broad ligament, into which the hemorrhage was going on for some minutes before I noticed it. Why

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I think it may have been air in the veins is because the doctor who was giving the anesthetic told me one minute that her pulse was all right, and a minute later informed me that it was gone. Another one was a woman over 60 years of age with a large unilocular cyst, who, the house surgeon of the Western told me, was only twelve minutes out of bed, which is the quickest operation I ever did. In order to prevent bleeding into her abdominal veins I took the precaution to put two gallons of hot salt solution into her abdomen as the cyst was emptied. I gave a most favorable prognosis to the large class present, as her pulse was so good. Shortly after, the very hot weather, the hottest, I believe, on record, came on, and she died from what appeared to be sunstroke two weeks later. This incidentally brings up the question of abdominal section during the summer. I have never made any difference for this, and this is the only one who ever seemed any the worse for being operated on during hot weather. Another of my deaths was an abdominal hysterectomy for cancer of the uterus in a well-known lady of this city, who was previously so much reduced by hemorrhage that she never rallied, although the operation took only a little over half an hour. Another death also occurred from septicemia, due to some break in the aseptic precautions after a comparatively easy and usually very safe operation—namely, removal of the tubes and ovaries for fibroid. One other death in 1897 was due to peritonitis after the removal of an almost impossible pus tube. I got the pus tube out, but in doing so tore the intestine considerably; and although I sewed these holes up with two layers of suture, I did not feel satisfied myself, because the intestine was so thickened and softened with infiltration that I doubted whether the stitches would hold. I would have cut out a few inches of the rotten part of the bowel had it not been that this was situated in the upper third of the rectum, and as the woman had very thick abdominal walls I failed to undertake the task. These 4 deaths in 1897 not only increased my general death rate from 3⅓ to 9 per cent, but as 2 of them occurred at the Samaritan they made 3 deaths there in thirteen months, against 1 in the previous twenty-three months. These 4 were the only deaths there since its opening three years ago. Two other women were brought in in a moribund condition with puerperal fever, and were not in a condition to have anything whatever done, and they died, one in one day and the other in three days after admission.

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OBSTRUCTION OF THE BOWELS; SECONDARY LAPARATOMY; RECOVERY.

Mrs. G., 34 years of age, had been under my care for several months at the Montreal Dispensary for retroversion with fixation due to extensive disease of the tubes. She had never been pregnant; in fact she had never been well since her marriage ten years ago, when she seems to have been infected. She had one attack of pelvic peritonitis then and several others since. Ordinary treatment afforded but little relief, so on the 1st of April she was admitted to the gynecological ward of the Western Hospital, under my care. On the 8th of April I removed the tubes and ovaries with great difficulty and performed ventrofixation. The operation was prolonged owing to the density of the adhesions, in addition to which the omentum was so adherent to the abdominal wall and brim of the pelvis that I had to tear it considerably, and this necessitated my cutting a large piece of it off. The patient rallied well from the operation, her bowels moved well, and she made good progress toward recovery until nine days after the operation. Then she became distended and commenced to vomit, at first bile; but on the tenth day the ejecta were distinctly fecal, so I decided to reopen her immediately. I followed the distended intestine along until I came to the collapsed point, and there I found the small intestine kinked and adherent in two places, one at the brim of the pelvis at the raw spot left by detaching the omentum, and the other to the abdominal incision. The moment that these two adhesions were freed the bowel could be straightened out and its contents could be seen rushing down through it. I had a good opportunity of observing how firmly the uterus was cemented to the abdominal wall even in nine days. The patient made a good recovery, except that the reopening damaged the surfaces of the former incision, so that after the second operation they united by granulation instead of by primary union; also, a silkworm-gut stitch had to be removed some months later, after which her recovery was complete. Of my 249 abdominal sections, 17 died. Two of them would probably have recovered if I had not delayed the operation after fecal vomiting had set in. That is late enough; any longer delay means death.

INCOMPLETE OPERATIONS.

Three of my laparatomies were incomplete; that is to say, I was unable to accomplish what I had undertaken. One was a

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retroversion with fixation, which was of so long standing, in a woman over 60, that I was unable to detach the uterus, and I closed her up. She recovered, but was unrelieved. Another was a tumor of the broad ligament so densely adherent to the pelvic wall that I could not detach it; she is one of my 17 deaths.

Another was a case of appendicitis and pus tubes, in which I removed both the appendix and the right tube and ovary, but failed to drain the pelvic cellular tissue into the vagina, on account of her low condition. The abscess of the broad ligament has broken into the bladder.

CONSERVATIVE SURGERY OF THE OVARIES AND TUBES.

Properly speaking, this would mean some operation performed upon the ovaries and tubes without removing them or destroying their functions. Thus, we may remove one ovary and tube and leave the other one. Or we may remove one and leave a part of the other. We may open cysts with the knife or cautery, or exsect the diseased portions, sewing up the flaps with fine silk. We may empty a hydrosalpinx, cut off the pavilion of the tube. and make a new one by sewing the mucous membrane to the peritoneum. We may apply the above term, although not quite correctly, to the leaving-in of the ovaries and tubes when they are apparently so diseased that they should come out. Before referring to some of my cases in which conservatism in this double sense was employed, I might point out that the preservation of the ovaries, or enough of them to keep on the menstrual function, is very important. In young women especially, the artificial menopause brought on by removing the ovaries causes for a time distressing symptoms. Young unmarried women complain chiefly of the hot flashes and cold chills. In young married women it is the contraction and shortening of the vagina and the loss of sexual feeling, if they had any, which trouble them most. There is also the important question of child-bearing, which, however, does not come up in the majority of these cases, because the women were already sterile on account of the disease. This, however, and the somewhat erroneous ideas held by the male laity with regard to women whose ovaries have been removed, have led to many separations and to more than one divorce. So, taken all together, the conscientious physician will err on the side of conservatism. That it is sometimes an error I have found out to my cost, by failing to cure cases owing to leaving

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in one or both, or a part of an ovary, which would probably have made brilliant cures if the whole of both ovaries had been removed.

However, you may judge of our difficulties by the following cases in my practice:

Mrs. H. had been a chronic invalid for years, having at last to give up her house and go to board. Constant pain in back and down thighs. Coitus almost impossible. *Examination.*—Retroversion with dense adhesions, ovaries and tubes cemented under uterus. *Operation.*—Patient having insisted upon ovaries being left in, all that I could do was to dig them out of their bed, and, having thus freed the uterus, to fasten the latter to the abdominal wall, the torn and ragged ovaries being left, much against my judgment. *Result.*—Patient is now in splendid health, menstruation regular and painless, and has taken up housekeeping again, neither coitus nor locomotion causing the slightest pain.

Mrs. E. Large pus tube and ovary on right side removed with great difficulty. Left ovary examined and pronounced healthy by several colleagues and returned to its place. One month later it was the size of an orange, causing acute suffering requiring a second laparatomy, when it was found full of pus. After its removal patient made steady recovery and is now in splendid health. Would it not have been better to have removed both ovaries at the first operation?

Mrs. D., from Pembroke, had hydrosalpinx and cystic ovaries. The hydrosalpinx was removed, and the cysts in the ovaries, some of them holding a drachm of fluid, were emptied. As she was only 26 years of age, conservation of the ovaries was deemed advisable. She recovered nicely from the operation, but claimed she was not a bit better. Since returning home she has written frequently, complaining bitterly of her suffering and blaming me for not having removed the ovaries.

Mrs. S. was sent to the Samaritan by her physician, who had been treating her for several months for an exceedingly painful left ovary, which could be felt, as large as a hen's egg. in Douglas' cul-de-sac. She also had a subperitoneal fibroid. Only one ovary and the fibroid were removed, and she is now in splendid health.

Mrs. R., of Iberville, had retroversion with fixation, and both ovaries embedded in adhesions. Uterus brought up and fixed, and at her earnest request one ovary was left in. Being cystic, small pieces were snipped off the cysts, so as to prevent

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them from refilling. *Result.*—Uterus in good position, and had a child since, but hardly been a day since operation that she has not suffered from the remaining ovary.

Mrs. M., from Compton. Sent in to have ovaries removed and retroverted uterus fastened up. Ovaries were hard and so small that a colleague urged me to leave them. *Result.*—Patient suffering as much as ever and very angry and disappointed.

Just here I would like to say that most practitioners, and even general surgeons, fail to recognize the immense amount of suffering that may be and generally is caused by sclerotic ovaries. These ovaries are smaller than normal, owing to a diminution of the parenchymatous or follicular structures. And yet there is decided increase of the connective tissue. The ovary is hard and of a lighter and paler color than normal; the visible ovarian follicles are few; the greater part of the ovary appears to be a mass of wrinkled connective tissue. When I have been removing these ovaries I have heard some of my colleagues questioning the justifiability of removing such, as they thought, healthy ovaries. And yet these women have assured me that for several years before their operation they had never been a day free from pain, while they have equally maintained that the day after their removal that pain had left them, not to return.

A few months ago there were two young women of the same age in adjoining beds at the Samaritan. Both had been suffering constant pain for several years. Their ovaries were small, so that, although their abdominal walls were very thin, I could barely feel them. They were very tender to touch. They suffered pain all the time, but just before the period and during the flow, which was scanty, their suffering became unendurable. One was an orphan who made her living as a music teacher, and she and her doctor implored me to operate at once, so that she might be able to work in September, as otherwise she would lose her pupils. She assured me that she had with the greatest difficulty kept at work until June. Her ovaries were removed, and next day she told her companion that her pain was gone, and this notwithstanding the pain inseparable from laparatomy. Six weeks later she reported to the matron of the Samaritan that she was well and happy, entirely free from pain, and engaged in going from one pupil's home to another and giving lessons.

The other girl had a home to go to and there was not the

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same reason for haste, so I declined to remove her ovaries until other and prolonged treatment had failed. I kept her in bed a month, did dilatation and curetting, and gave her hot douches and salines, all without avail, and she went home no better than when she came in. She is now taking tonics, and, as I feel that in her case I have carried conservatism too far, I will send for her as soon as I have a bed, and by removing her ovaries put an end to her misery.

On September 16, at the Western Hospital, I removed two very diseased and closed tubes from a woman, 39 years of age, who came in with retroversion and fixation of the uterus. The ovaries were cystic, but she would not consent to their removal. So I merely opened numerous cysts and left them in, and fastened the uterus up. On September 22 I removed two suppurating tubes from a young woman, 22 years of age, suffering from pelvic peritonitis of gonorrheal origin. As she was engaged to be married, she urged me to leave the ovaries if it were at all possible. This I accordingly did, after clearing them carefully, opening cysts, and removing a layer of partly organized lymph from their surface. On September 25 I removed both tubes and one ovary from a woman 38 years of age. This patient, who was sent to me by Dr. Mason, of Montreal West, had an acute appendicitis and pelvic peritonitis going on, as was evidenced by the flakes of recent lymph which could be easily seen by the class. The appendix was removed even with the cecum, in the manner elsewhere described. The left ovary was carefully cleaned and left in. The temperature, which had been high, soon after dropped to normal, and she made a good recovery, declaring that she was entirely free from pain.

It is too soon to speak of the results of these three cases, but their possibilities are interesting. Will that girl without any tubes ever menstruate? I think she will regularly, but probably with pain. Will she ever become pregnant? I think not, although it is possible that those ligatures on the tubes may be absorbed and the canals in the horns of the uterus be opened again. Will the other two women, 38 and 39 years old, have an easier or a harder menopause because they have no tubes and only one ovary? The results in these three cases will have a considerable influence upon my own course and perhaps upon that of others in the future, whether we will continue on these conservative lines or not, and I will therefore in due time report them.

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When I think of the many other cases, besides the few I have mentioned, in which the result of conservatism has been utterly disappointing, and, on the other hand, of a few which have been most gratifying, as when they have subsequently borne children and are still free from pain, it is still as difficult for me as ever to decide whether I will risk the patient's welfare and my own reputation on any more doubtful experiments.

SEVEN CASES OF TUBAL PREGNANCY.

The management of these cases constitutes one of the most brilliant advances in abdominal surgery. In two of the cases I had recommended the removal of the tubes and ovaries several years ago, but they preferred non-operative treatment off and on. One of them was sent to me by Dr. Aylen; I admitted her to the Samaritan Hospital, when the physical examination, added to the history, made it clear that a severe hemorrhage was going on in the abdomen from a ruptured tube. I opened the abdomen in the presence of half a dozen practitioners, and found it full of blood, which was pouring from the left tube. A ligature was quickly placed upon the ovarian artery, which at once controlled it, and the fluid blood and clots were scooped out of the abdomen. While doing this a fetus five inches long, which was floating free among the intestines, was brought out. Being still fed by its cord, it was alive and moving, and was christened before it died. The other woman became pregnant while I was attending her for diseased tubes of long standing, and I had the somewhat grim pleasure, twice a week, of feeling the mass grow under my finger until it ruptured, when I at once opened the abdomen and removed several pints of blood and a fetus three inches long still lying in the ruptured tube. Another case, sent by Dr. Rollo Campbell to the Samaritan, was diagnosed before rupture, the tube only rupturing while being taken out. Two other cases were diagnosed correctly, one before and one after rupture. The other three were supposed to be pus tubes, tubal pregnancy not being suspected. All of these cases recovered and are in good health. Judging from my own experience of seven cases, if operated upon early the prognosis is of the most favorable kind. Early operation is certainly very much better than leaving them to bleed to death internally, or, if this does not take place, to let them go on to full time when the life of the child is not always saved by the death of the mother.

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I might mention just here that instead of the menses being arrested, as one would expect, most of these women had their periods every month, and some of them had a constant flow. In nearly all the breasts were enlarged. When we get these three symptoms—enlarged breasts, irregular flow, and a painful, rapidly enlarging mass in one side of the pelvis—we may suspect tubal pregnancy. If this is followed by an attack of syncope we may be almost sure of it and should lose no time in operating. If this were always done at once it would be rare to lose a case.

VENTRAL AND UMBILICAL HERNIA.

There were nine of these cases, and, although some of them were exceedingly difficult, they all recovered. The worst one was the result of one of the first ovariotomies performed in Montreal, about twenty years ago, and was probably due to removing the stitches in four or five days, as was usual until within the last eight years, since which time I have been advocating the leaving of them in for a month. In this case the intestine was so densely adherent to the abdominal wall that, in order not to hurt the bowel, I was obliged to cut off a long strip of the abdominal wall or wall of the sac and leave it on the intestine. The recti muscles were then dissected out and united by buried silkworm-gut sutures, which method has been followed in all of the cases. Another very difficult one resulted from an operation in Boston. Two others resulted from early operations of my own, owing to removing the sutures too soon in one case and owing to the drainage tube in another. As far as I am aware, no case of hernia has occurred in my own practice during the last three or four years. In three of the nine cases the hernia was umbilical and congenital and caused great suffering and distress. In one of them, a very stout woman, I had to remove more than a pound of omentum, which was torn during its dissection from the sac. She was sent to me by the kindness of Dr. Drummond, who knew that she had been an invalid for years. I have heard since that she is earning her living, being in good health.

DRAINAGE.

As many of you are aware, I was for many years a strong advocate of drainage after the removal of pus tubes or other conditions leaving a large area of raw surface on the peritoneum. But having lost one case three years ago from, as I

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believe, drainage-tube infection, I gradually abandoned drainage, with benefit to the patients. This, however, would hardly have been possible were it not for the Trendelenburg posture and the better preparation of the patient's bowels, which together enable us to see every oozing point and stop the bleeding by a few minutes' pressure with very hot gauze sponges or by fine silk ligatures on the spurting vessels. I might say, in passing, that such a thing as a sponge has never been seen either in the Samaritan or in my private hospital, and is now only seen as a curiosity at the Western; at least I never use them there. As a rule the bowels have been so well prepared during the two or three days previously that the intestines are never seen, lying collapsed up near the diaphragm. I cannot too strongly deprecate the plan, advocated by some, of taking the patient into hospital at night and deliberately undertaking a serious abdominal operation upon her the next morning. It adds enormously to the time required for the operation, and consequently to its danger, owing to the intestines being distended with gas and constantly in the road, but still more because it necessitates their exposure and handling. This latter leads to distension or tympanites, greatly increasing the operator's anxiety after the operation. Drainage was a good thing when we worked in the dark and could not see where the oozing was coming from. I have only abandoned it because there is now no longer anything to drain.

After all pus cases and tubal pregnancies I wash out the abdominal cavity with several gallons of hot salt solution which has been boiled and allowed to cool to 100° to 110°. I heartily indorse what Dr. Armstrong said, in his paper on appendicitis, about the uselessness of pouring water from a pitcher into the abdominal cavity. It must be carried by a long and large, smooth nozzle, or by the rubber tube itself, down to the very bottom of Douglas' cul-de-sac and then up to the liver, while the hand which guides it is constantly paddling the water under and around every coil of intestine. In this way the bowels can be washed thoroughly without taking them out of the abdomen.

Although we know now that the micrococci in pus tubes of long standing have been killed by their own ptomaines or excretions, yet this pus is only comparatively harmless. It should be carefully washed away in every case of bursting during removal.

During the last few years it has been my custom to leave

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from one to four quarts of salt solution in the abdomen for the purpose of preventing adhesions, but more especially in order to fill up the empty arteries and promote diuresis. A few years ago we were taught that the patient was to have no water, so that the peritoneum would thirstily drink up any exudation. But the result of this was that the patient suffered not only from thirst, but also from a distressing aching all over the body, due to the presence of uric acid in the joints and muscles, which could not be eliminated because there was no water. Now the peritoneum is given several quarts, which it drinks up, besides which I give every patient who has a weak pulse or high-colored urine several quarts of salt solution by the rectum, which is quickly absorbed and relieves the thirst and increases the urine. Patients used to complain so bitterly of thirst that they are now urged to drink several quarts of water on the day previous to the operation.

Gauze Drainage.—While speaking of drainage I might mention that I have only used iodoform-gauze drainage once, and that patient died. I made a post-mortem, which demonstrated that the gauze drainage had not drained in that case. Since then I have never used it.

Antiseptics in the Abdomen.—While speaking of iodoform gauze I would like to say a few words about iodoform. I have almost entirely discarded it for three reasons: first, because it is dangerous when absorbed—a great many cases of fatal poisoning by it have been reported, not only by other members of this society as well as myself, but by many other operators in other countries; second, on account of its abominable smell, rendered all the worse by the association of ideas or suggestion of other disgusting diseases; and, third, on account of its cost—where it is used by the pound the cost is considerable; and as I obtain quite as good results from the much cheaper boracic acid or acetanilid, or a mixture of both, I only use iodoform in the form of iodoform gauze for packing the uterus and in ethereal solution for saturating my silk ligatures.

Neither do I use carbolic acid or chloride of lime. Those who have visited the Samaritan or my private hospital have remarked the entire absence of any hospital odor; that is because the wounds are, as a rule, dry and buried half an inch thick in boracic acid, and because there is neither carbolic acid nor iodoform in the dressings. If by chance a case suppurates, peroxide of hydrogen keeps it sweet until it heals.

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APPENDICITIS WITH TUBAL PREGNANCY AND PUS TUBES.

In a short paper which I read before the last meeting of the British Medical Association, published in the *British Medical Journal* of October 16, 1897, I reported 7 cases of appendicitis. On the very day on which I read that paper I came upon another case, which was, of course, not in my paper. I operated on a case of tubal pregnancy on the left side. The tubal mass was easily enucleated, but the appendix vermiformis had come over from the right and become firmly adherent to it; so much so, indeed, that I was able to tie off the tube and ovary and then to cut off the appendix even with the cecum and hold the tube up by the appendix. This would have been a beautiful specimen to show to the meeting, but unfortunately the probationer at the Samaritan threw it out, not knowing its great value. The patient had not complained of pain in her right side, so that the idea of appendicitis had not entered my head. This patient made a splendid recovery, and is doing her own work, so I am told.

This made 8 cases of appendicitis in 99 pus tubes and 7 tubal pregnancies, or 7½ per cent.

Dr. McCosh, of New York, on the other hand, in a recent paper on appendicitis,[1] notes 4 cases of pyosalpinx in 53 cases of appendicitis. Besides these 8 cases in my own practice, I have seen 2 others in the practice of my colleagues at the Western Hospital. Several other writers mention that they have seen these two conditions present at the same time. It is difficult, however, to say which of them was the initial one; that is to say, whether the pus tube caused the appendicitis, or the appendicitis caused the pus tube. The fact that in all of the cases both tubes were markedly diseased would tend to prove that the pus tubes caused the appendicitis; for, if the contrary were the case, only one tube, and that one the right one, would probably have been affected. Even this, however, is not quite certain, because a number of writers have observed that the diseased appendix caused pain at the left of the median line, and when the patient was operated upon the appendix was found to be attached to some point in that region. In fact, in many cases the pain is not felt at McBurney's point, midway between the umbilicus and the anterior superior spine of the ilium, but several inches higher up on the same side, and in other cases several inches to the left of this point. It is now

[1] American Journal of Medical Sciences.

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well known that the appendix varies greatly in length; in one of my cases it was estimated to measure eight inches, while other cases are on record in which the appendix was found by actual measurement to be even longer than that. In some cases it has been found attached to the liver. Why does it wander about in the abdomen? Probably it is wafted about by the peristalsis of the intestines. When it is inflamed it would naturally gravitate toward the tube, being much heavier than normal; in one of my cases it had a sinker in it in the form of a calculus filling the extremity and looking very much like a date stone.

It is thus evident that a diseased appendix would be especially liable to fall upon and become adherent to the Fallopian tube. Morris, of New York, has shown that the appendix is fed by a central artery, which frequently becomes blocked up by the pressure of inflammatory exudation or of a foreign body about the entrance near the cecum. We know also that when ovarian tumors become twisted, so that the ovarian artery is closed, the tumor forms adhesions to neighboring structures, such as the abdominal wall or the bowel, and obtains its blood supply from them instead of from its own artery. It may be that the appendix vermiformis has the same power, and that when its own artery is occluded it instinctively attaches itself to some other organ, on which it becomes, so to speak, a parasite. Having seen several cases, from one to two years after their appendix had been removed, who were suffering from fecal fistula or pericecal abscess; and noticing in Armstrong's paper [1] that fecal fistula followed 15 times in 541 cases, and in McCosh's paper that he had seen the same accident several times; and on reflecting as to the cause and means of preventing it, it seems to me that the cause of the trouble may be traced to the method of treating the stump of the appendix. When we make an opening in any other part of the large or small intestine, we always begin by sewing up the hole with fine silk or catgut sutures, bringing the mucous and muscular layers together. But we know that such a closure alone could not be trusted to retain the contents of the bowel, so that this first line of suture is invariably followed by a second row, bringing peritoneal surfaces in contact and at the same time turning in the first row of sutures. No one would for a moment propose to close an opening in the bowel by picking up

[1] British Medical Journal, October 9, 1897.

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the edges of the opening and tying a ligature *en masse* around them, because this would simply bring mucous surfaces in contact, and when the ligature has cut through or otherwise fallen off the secreting glandular surfaces would separate and the contents of the bowel escape. I have never seen any one, even the most ignorant of intestinal surgery, adopt this method of closing a hole in the intestine; and yet the appendix is practically a part of the intestine. and what applies to the latter applies to the appendix in every respect. It has glands, which secrete mucus, embedded in the mucous membrane, and. therefore, to the writer it seems quite as unsurgical to put a ligature around the base of the appendix a quarter of an inch from the cecum and then to cut it off. Those who follow this method may say that they cauterize the mucous membrane after cutting off the appendix, and not only disinfect it but also destroy its secreting surface. But this, I maintain, it is impossible for them to do, because they manifestly cannot reach the mucous membrane brought together by the ligature, nor still less the part of it which lies below the ligature. If there were only one case of fecal fistula instead of 15 in 500 it would be worth while preventing it.

The ideal method, in my opinion, and which I have followed in these cases, is for an assistant to hold up the intestine an inch on each side of the appendix, and, after tying and cutting the meso-appendix, to snip the appendix off even with the cecum. The hole in the intestine is then sewed up with fine silk, care being taken to include only the muscular coat. A director is then pressed upon the line of suture until it sinks below the surrounding surface, when another row of sutures brings the peritoneal surfaces together. Such a closure will almost surely unite by primary union, doing away with all danger of fecal fistula or pericecal inflammation by which the opening in the appendix is sometimes closed, and in which cases, although there is no fecal fistula, the patient is subjected to a good deal of discomfort while Nature is throwing out a layer of plastic lymph to seal the defective closure. Some authors recommend the peeling-off of the peritoneal coat of the appendix, so as to form a cuff a quarter of an inch long, and then, after tying and cutting off the appendix in the manner which is condemned above, make up for the defect by sewing the peritoneum over the end of the stump. This is much better than leaving a sloughing stump free in the abdomen, but is by no

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means as good as the method advocated above, in which no stump at all is left and nothing but a fine, thin line of Lembert suture, which we know gives absolutely no trouble.

I trust that this suggestion will be generally adopted by those who are doing this life-saving operation more frequently than I. It is offered as my contribution to the improvement of the technique of the operation.

250 BISHOP STREET.

THE NEED OF CARE IN INSTRUMENTAL DILATATION OF THE CERVIX UTERI.[1]

BY

JOHN VAN RENSSELAER, M.D.,

Washington, D. C.

IN surgical procedures, as in mechanical operations of all kinds, it is the careful attention to minute details which crowns one's work with success. We are all aware of the freedom with which enormous wounds may be made in the human anatomy if all possibility of infection be excluded by diligent asepsis, clean, healthy incised tissues coming together again and healing in a manner that would have amazed the surgeons of a few years ago. But this perfection of repair has been secured only by a rigid observance of certain known principles of cleanliness, which have been recognized and led forward step by step from the chaos which formerly prevailed.

We often derive much more benefit from the discussion of matters of every-day occurrence than from those of great rarity. By this I do not wish to belittle the value of original research, but merely to emphasize the importance of keeping fresh in our minds certain routine methods by means of review. We cannot all be original investigators, but may perfect our knowledge of that which we have acquired by repeatedly reviewing.

Rapid dilatation of the cervix, in contradistinction to the old gradual way by sponge tents, is a measure which is very frequently practised, both for diagnostic purposes and in the treatment of various conditions. It is so simple and effective in the relief afforded that we wonder it was not practised

[1] Read before the Washington Obstetrical and Gynecological Society, April 2, 1897.

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long ago. It alone is quite sufficient to cure the agonizing pain of dysmenorrhea due to stenosis, and as an aid in the treatment of endometritis it is invaluable. The following are the steps usually taken: Under full anesthesia, the vagina having been thoroughly cleansed, the cervix is exposed by the Sims speculum, firmly grasped by volsella, drawn forward—if inflammatory conditions of the appendages do not contraindicate this—and steadied. The direction of the uterine canal having been determined by the use of the uterine sound, a small Nott or Ellinger dilator with closed blades is introduced, and the cervical canal gradually stretched until a larger instrument, such as Goodell's, can be used. With this the dilatation is carried on to the requisite calibre, half an inch being generally sufficient. Sometimes the internal os is rigid, to overcome which prolonged manipulation may be necessary. In women who have borne children and who are able to endure some pain the anesthetic may bo dispensed with.

It is more especially those cases of stenosis with unyielding canal to which I wish to refer. When performed intelligently and with care, under aseptic precautions, there is very little risk, but if undue force be exercised the tissue may give way and extensive tear result, which may have the same unfortunate effect as a neglected laceration after childbirth. In fact, if a laceration occur it should be repaired, just as when in the removal of neoplasms from the cavity of the uterus the cervix is incised up to the vaginal junction and sewn up again. The case I have to report bears upon this subject.

S. N., a young married woman 25 years of age, came to me in January of this year, complaining of a severe leucorrheal discharge. Her previous history was as follows: As a girl she had always suffered a great deal of pain at her menstrual periods. After marriage she consulted a specialist, who found the os very stenotic and advised dilatation, which was done under anesthesia. As a result the dysmenorrhea was relieved, but a profuse leucorrheal discharge supervened, which had persisted for a year, notwithstanding local treatment by means of applications and douching. Upon my examination the cervix was discovered to be in a characteristic state of bilateral laceration, the lips thickened and hardened, with angry erosions and distended glands. A glairy secretion exuded from the canal, constantly irritating the ulcerated parts. As the fact that she had never been pregnant was beyond all question, I attributed this state of affairs to the dilatation.

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As soon as arrangements could be made I did an Emmet operation. dissecting out the cicatricial tissue, inserting two catgut sutures and one silkworm gut on either side. The patient was kept in the recumbent posture for two weeks, at the end of which time I removed the silkworm gut. Union was perfect, erosions having entirely disappeared, and the cervix presenting a perfectly healthy condition. The leucorrhea has been completely relieved.

This case illustrates to my mind the need of care in instrumental dilatation of the cervix uteri, to avoid producing injuries which may result in as bad a state of affairs as that which the operation was intended to relieve.

2 THOMAS CIRCLE.

CORRESPONDENCE.

OPENING AND CLOSING THE ABDOMEN.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—The numerous ways adopted in closing the abdominal incision must show a lack of general confidence in any particular method, or the necessity of various methods to meet the mechanical ideas of different operators.

Hoping that the method I have been using may at least appear to some to be not only mechanically correct, but to offer an additional safeguard against post-operative ventral hernia, I venture to describe it.

Make the incision through the skin about an inch to the right of where it is the intention to divide the aponeurosis. Press or dissect the subcutaneous fat to the left about an inch, go down to the peritoneum and separate it from the parietal wall to the right about half an inch, and divide it in this line.

To close, commence the peritoneal running suture as usual, catch every third stitch in the parietal wall as far from the line of incision through the aponeurosis as convenient. Stitch the aponeurosis. Bring skin together with subcuticular stitch, two rows, the first bringing the subcuticular fat back to place. The cicatrices of the different layers not being in line, that of the peritoneum in particular being well out of harm's way, we have a closure that offers but little chance of ventral hernia.

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The original opening may be enlarged with little if any extra trouble. The method may necessitate a little longer opening in some cases, but it has not been found necessary in eight cases, for various pathology, in which it has been tried.

Yours very truly,

F. B. WILKINSON, M.B.

SARNIA, ONT., December 4, 1897.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of October 21, 1897.

The Chairman, J. M. BALDY, M.D., *in the Chair.*

DR. W. REYNOLDS WILSON read a paper entitled

THE ANATOMICAL POINTS INVOLVED IN EMMET'S METHOD OF OPERATING UPON THE PERINEUM IN LACERATION OF THE SECOND DEGREE.[1]

DR. CHARLES P. NOBLE.—Dr. Wilson has my sympathy in endeavoring to present in a lucid way this subject. It is no doubt one of the most difficult to present in an intelligent way that gynecologists are called on to deal with. He has my sympathy, because I have tried myself to express my ideas on the subject. I feel that the ideal to aim at in the perineal operation is to restore the parts as nearly as possible to their anatomical condition, and that, therefore, we should not only restore the fascia, but the muscular connections as well. That undoubtedly is the ideal. As to the various operations employed for this purpose, I believe that the Emmet operation is the best foundation operation that we have, not only because the denudation follows the line of laceration, but also for one or two practical reasons. I think we are very much better able to take up the lax tissues resulting from the rectocele by using the Emmet operation than by any other. That is the advantage it has, over and above the fact that we are better able to restore the anatomical conditions to their original status than by the operations in which (for instance, the Hegar operation) sutures are put in from side to side. It is very hard to discuss this question along the lines of Dr. Wilson's paper, but I will say something from one point of view. There is no

[1] See original article, p. 19.

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doubt that lacerations of the so-called second degree—that is, the serious lacerations of the pelvic floor, which do not go through the bowel—involve the deep pelvic fascia and the levator ani muscle on one or both sides, and involve that part of the levator ani muscle which unites with its fellow on the opposite side in the median line. In order to restore the parts to their anatomical condition it is essential that the denudation be made so that the muscle can be reattached to the sides of the rectum and vagina, and also that the two slips of the levator muscle be united in the median line in front of the bowel. That, I think, the typical Emmet operation does not do, and we have to depart from the Emmet operation to accomplish this. I went into this subject fully last year, and I do not feel that it is necessary to go over the matter at this time. I do believe it is necessary to depart from the Emmet operation, in introducing the so-called crown stitch in order to accomplish this purpose.

I think it is quite possible to overdo operations on the perineum, particularly in women advanced in life. I say this from experience. It is quite possible to overdo the operation and make the vagina so narrow and so rigid that in married women it is a serious inconvenience in the family, and I think as women are advancing in life this point should be taken into consideration; the tissues are no longer as elastic as earlier in life, and, therefore, if the vagina is sewed up very tight, and particularly if a considerable part of the levator muscle is brought together in the median line, it will make the perineum rigid and be a source of discomfort to the woman. I have seen cases in which perineal operation was done at the same sitting that the ovaries were removed, and there was precipitated on the operation the menopause, with atrophic changes that follow removal of the ovaries. I would make that a practical point in women who have passed the menopause, or women who have recently had ovaries removed, or women from whom it is intended to remove the ovaries, that we should not make as tight a vagina as is done in younger women or in those who are menstruating.

DR. W. REYNOLDS WILSON.—I agree with Dr. Noble in reference to the Emmet operation in that it does not always meet the demands of an ideal operation. It sometimes requires the introduction of stitches to bring the more anterior fibres of the levator ani muscle together in front of the rectocele. On the other hand, I think any one who will do a conscientious Emmet operation, introducing the sutures antero-posteriorly, will be able to get the result without bringing all the tissues together laterally that he would in the transverse operation; although there might be still left some gaping at the outlet of the vagina, yet at the point of the introitus where the hymen originally was the tissues will be brought firmly together and support of the pelvic floor will be obtained. I think there is no doubt of that in the true Emmet operation, although where there is a great deal of rectocele this may not hold. Whatever

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may be said about the Emmet operation, Emmet's investigations have instructed all operators more than any work that has ever been done. Emmet's statement of the operation, I admit, although his ideas are clear, is not a clear statement for anybody, speaking differentially; it is simply an attempt to get at the explanation of his success with a certain method. That is his early statement. I am not familiar with his later utterances. Yet were this the only work he had done he has certainly taught us the importance of deep suturing.

DR. JOHN B. DEAVER read a report of

THREE CASES OF HYSTERECTOMY—TWO FOR FIBROID, AND ONE IN THE CASE OF A VERY EXTENSIVE PAROVARIAN CYST OF LONG STANDING.[1]

DR. B. F. BAER.—Of the three cases reported by Dr. Deaver, only one seems to call for discussion. I refer to the colored woman who had peritonitis and was found to have pyosalpinx complicating fibroid tumor. The question as to whether immediate operation should be done in cases of that character must be decided in the presence of the individual patient, and since this case terminated favorably we must conclude that no harm resulted from the waiting and expectant treatment which was pursued. The peritonitis in cases such as this is nearly always simply local, and is generally due to pressure from incarceration of the tumor in the pelvis and consequent interference with the circulation and with intestinal peristalsis, or to sepsis from leaking of pus from the tube. It is probably never idiopathic. It would, therefore, seem the most rational course to proceed as soon as practicable to remove the cause. I have very generally pursued the latter course, and after considerable experience can say that the result has been most favorable. On the other hand, I have seen much harm follow the delay attendant upon the expectant treatment.

The method of the management of the peritonitis, when it is decided that operation should be delayed, I would indorse most heartily, especially the nourishing of the patient in the form of rectal feeding in which whiskey takes part. If nothing else than water and whiskey were given, that in many cases would be sufficient nourishment for the time being. The calomel, for its cholagogue action and as a stimulator of intestinal peristalsis, is most valuable; but as it is very important that the bowels should move promptly and thoroughly, I would add to each enema one-half ounce of sulphate of magnesia until the bowels begin to move. The enema should be repeated every two to four hours.

The application of cold for the purpose of keeping down temperature is of course always beneficial in these cases, but I believe that the application of iced water and vinegar to the arms and hands is a better method than the constant contact of ice with the abdomen. The continuous application of an ice bag to any part is attended with some danger of loss of vitality.

[1] See original article, p. 42

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I wish to state again my strong belief in the prompt removal of the cause by operative interference.

DR. JOHN C. DA COSTA.—I am glad to find that Dr. Deaver esteems mercury of value in peritonitis. It is really one of the best remedies which can be used, and the risk of salivating the patient is almost *nil*. I am also glad to hear him decry blisters in peritonitis, which usually do more harm than good. The one local application which does good in cases where there is of necessity a delay in operating is mercury, in the form of blue ointment. It is surprising to find what relief this brings to the patient.

The use of salines in the treatment of peritonitis is not new. I saw them used habitually in Canada during the winter of 1871 and 1872 by a very able and distinguished Canadian surgeon, who had been a pupil of Sir James Y. Simpson, from whom he probably obtained the idea. This surgeon also used blue ointment externally in conjunction with calomel internally, and obtained good results. At that time the surgical treatment of peritonitis was, of course, not known.

DR. C. P. NOBLE.—I am quite in accord with the wisdom of the plan adopted by Dr. Deaver. In a case of peritonitis, more especially when pelvic in origin, if the outlook is that the patient will recover from the particular attack, I believe it is good policy to wait until the attack is over. If, on the other hand, in our judgment it will get worse instead of better, we may be driven to operate during an attack; but I agree quite heartily with the doctor in his plan of waiting for the peritonitis to subside. There is a difference in the course of operations done in the course of a peritonitis and those done when there is no peritonitis, which we all appreciate. I agree also as to the inadvisability of using blisters, not only because they do no good in peritonitis, but also from the annoyance they cause if operation becomes necessary in the midst of attack. Stitch-hole abscesses are common if it becomes necessary to operate during an attack, if a blister has been on some time and the surface of the skin is infected, as it usually is.

DR. DEAVER.—The question of immediate operation in the presence of acute peritonitis is not always advisable. I see many cases of peritonitis in connection with inflammation of the right iliac fossa. Further, I regret to say, I frequently see cases the result of appendicitis where operation has been done at an inopportune time. Whether or not operation should be done in the presence of acute peritonitis depends, in my judgment, first, upon the character of the peritonitis, whether it is the result of appendicitis or other intra-abdominal lesion, and, if due to appendicitis, the length of time which has intervened between the onset of the appendicular inflammation and that of the peritoneal inflammation, the character of the treatment and the effect it has had, and the condition of the belly walls as made out by careful palpation. In peritonitis of the type presented by the cases of fibroid tumor I reported I am slow to interfere. In short, the question of operation in acute perito-

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nitis under any circumstances can be settled by the experience of the individual operator only. One who has had much experience in this class of cases can, other things being equal, tell more by the condition as made out by examination of the belly walls often than otherwise.

The treatment of peritonitis which to my mind is the most valuable is packing of the abdomen in ice, hypodermatic injection of strychnia, all nutriment being given by enema; in the presence of vomiting, fly blister applied over epigastrium, calomel given dry upon the tongue. I have had most marvellous results in otherwise hopeless cases by persisting with this treatment. The work of McCosh, Abbe, and others has demonstrated that the prolonged application of cold will arrest bacterial infection, and, if not, certainly alters the condition favorable for it. As to the use of blue ointment, recommended by Dr. Da Costa, I cannot see what direct effect it would have upon infection in the belly cavity. I would be rather inclined to think that it acted through its absorption. In other words, its action is similar to that of calomel when given for some time.

My father, who was a country practitioner of large experience, I recall distinctly, treated peritonitis by comparatively large and frequent doses of calomel. I strongly advocate the use of this drug. I think that if blue ointment does do good it is, as I have said, by its absorption, and therefore would do equally as much good if applied to the extremities. It is not necessary for me to speak of the importance of the ureter in connection with the removal of the parovarian or intraligamentary cysts. In the cases where it is difficult to make the enucleation, I am in the habit of freeing that part of the cyst in relation with the ureter by carefully dissecting with the scalpel and forceps.

DR. H. A. SLOCUM.—In regard to the saline treatment I would like to ask Dr. Deaver a question: Would he use it at any stage of peritonitis, for instance after peritonitis ran a course of several days? Also, does he use ice continually or take it off at times?

DR. DEAVER.—In answer to the first question, I would say that it depends largely upon the condition of the patient's bowels. I use salines if they have not been well moved. I do not believe in the nonsense of tearing up adhesions. When I hear a man talk of that sort of thing I am of the opinion he has not had much experience. As to ice, strange to say, you can use it continuously for four or five weeks upon the abdomen. I have seen ill effects in using it on another part of the body. Recently, upon attending a doctor's wife with synovitis of the ankle, I cautioned the doctor, but the ice bag was allowed on long enough to devitalize the tissues. Since then I have cautioned my house doctors. Why it does not have that influence in the belly cavity I do not know.

DR. J. B. SHOBER.—The weight of the ice bag, combined with the effect of cold upon the underlying bone, when allowed to remain for any length of time upon the ankle, the knee, or

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the elbow, is sufficient, in my opinion, to cauze devitalization of the skin.

DR. J. M. BALDY read a paper on

TWO CASES OF PELVIC INFLAMMATORY DISEASE IN WHICH THE USE OF MURPHY'S BUTTON BECAME NECESSARY; A CASE OF OVARIAN SARCOMA IN A YOUNG GIRL; AN OVARIAN PAPILLOMATOUS CYST.[1]

DR. C. P. NOBLE.—I would like to ask a question in relation to two points in connection with Case 2: First, why did he operate on the woman who had been two weeks on a debauch; second, whether he drained that case?

DR. BALDY.—In the first place, I operated because the woman had an old chronic condition with acute inflammation. I suppose the question depends upon the point brought up on acute peritonitis. The woman had a high evening temperature (104½°), and unquestionably examination showed the pelvis to be full of pus. I therefore hesitated a short time only. I feared if I did not operate promptly I would lose my patient from septic peritonitis. The pus had evidently been there a long time.

I have come to the point where I rarely drain the worst kind of pus cases. The glass tube in this case was in for twenty-four hours, and was then taken out because the discharge was not even bloody. This was a case in which I drained for twenty-four hours only.

DR. BAER.—Did the track drain afterward?

DR. BALDY.—No; the wound was simply redressed. When I came to take out the stitches the incision was closed, and you would never have known there had been a drain in.

DR. B. F. BAER.—The question of bowel injury from tumor pressure and extension of the pathological process, or the direct wounding of the intestine from the manipulation necessary in separating adhesions, is of great interest and importance; and, while I shall speak my views plainly on the subject in general, I do not wish my remarks to be taken as a criticism of the treatment in the cases just reported, for there are doubtless rare occasions when resection of the bowel is necessary. But that these occasions should be rare I am convinced, for it is remarkable how quickly Nature is able to restore what appears sometimes, during an operation, to be a very serious lesion. It has been my good fortune never to have met with a case which, in my judgment, required resection and the application of the Murphy button as a result of operative injury, and I have encountered many bad cases—cases in which adhesions were so extensive and firm that it was necessary to separate them with knife or scissors. In others I have found the bowel very dark and almost gangrenous in appearance, and even leaking a little, or at least in which a fecal odor was present, and yet I have always succeeded in finishing the operation

[1] See original article, p. 45.

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without the necessity for resection. Indeed, there has seldom been lesion enough made to require even suturing. From my own experience, therefore, I am forced to the belief that there is something wrong with the manipulative skill and judgment of the operator who is frequently resecting and stitching torn bowel. Even when there is a solution of the continuity of the bowel wall from ulceration I believe it is better, in some cases, to trust a little to Nature and watch the patient carefully, than to prolong the operation and subject the tissues to the further manipulation necessary in resection and the adjustment of the Murphy button. I believe I have saved life in a few instances of very badly suppurating cases, where the patient was *in extremis* from sepsis and where the bowel was leaking, by concluding the operation without any attempt at suturing, by simply irrigating, placing a drainage tube, and leaving the case to recover with a fecal fistula which soon closed. You say that it does not take long to make resection with the Murphy button? But it may take long enough to turn the scale; and then the operator may not always be as expert as Dr. Baldy, nor have had as large experience as some of us. The impression should not go out from here that we believe resection of the bowel is a simple matter. The post-operative risk of narrowing of the calibre of the intestine is also to be remembered.

I vividly recall a case we had at the Polyclinic Hospital in 1893 which very much resembles the case of debauchee related by Dr. Baldy. I speak of this particular case because of the resemblance, and because Dr. Erck, who I see is present, was then interne at the hospital and had charge of the after-care of the patient. The woman was brought in as an emergency case. Her temperature was 103°, pulse 130 to 150. She had rigors and sweating and was profoundly septic. Examination revealed a semi-fluctuating mass directly within the vaginal orifice, apparently between the vagina and the rectum. The swelling extended and enlarged into the post-uterine region. The cervix was out of reach, the abdomen was greatly distended, and palpation revealed several hard tumors in the hypogastrium, apparently connected with the uterus. Everything was firmly fixed. The patient's condition hardly warranted operation, but there did not appear to be hope for improvement. In the meantime it was learned that the woman had been a chronic inebriate. Abdominal section revealed, first, several fibroid tumors, with the bladder drawn high up directly under the incision; omentum and intestines, black and gangrenous-looking, were surrounding and adhering to large ovarian and tubal abscesses which occupied the entire pelvic cavity. Some loose, semi-purulent fluid, having a decomposed and fecal odor, filled the interspaces. I began by turning on hot-water irrigation, then found a point of cleavage and proceeded with the separation of adhesions. Deep in the left side of the pelvis, between the rectum and vagina and under the sigmoid flexure, I found the left appendages surrounded by

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fetid pus; the sac had ruptured. After the loose pus was washed out the abscess sac, tube, and ovary were brought up and removed. Continuing the irrigation, I proceeded with the dissection, scarcely knowing which was tumor and which was bowel, when I opened another abscess cavity. This abscess was found to be so deeply located that the lining membrane only was removed. I then proceeded to complete the operation by supravaginal hysterectomy, by the method which everybody follows at present. The operation consumed considerable time because of the necessity for care and deliberation in the separation of adhesions to prevent wounding of the weakened bowel. The appearance of the tissues was improved after the obstruction to the circulation had been removed, and I decided to close the abdomen without drainage. My reasons for not placing a drainage tube were the fear that the unyielding glass might rupture the weakened bowel; and, the patient being in a hospital where she could be constantly watched, I knew that we could at any moment on indication remove several stitches and permit drainage to take place; and, further, the saving of a little time was of value, for the patient was almost dead and no one expected her to rally and recover. Possibly I made a mistake about the drainage, for the patient did rally, and, after two or three days of uncertainty, began to improve under the watchful care and skill of Dr. Erck. On the third day there was slight drainage from the lower end of the incision, and we then removed a stitch or two for the purpose of making it free. Briefly stated, the patient made an entirely satisfactory recovery and left the hospital four or five weeks after the operation. I could cite many cases of somewhat similar character.

Why the Murphy button is retained so long in one case and not in another I think may be explained in several ways: the tissues are thicker and of greater vitality in one case than in another; then it is possible that after the button separates it may be temporarily arrested somewhere along the intestinal tract. There is a case recorded where a high enema succeeded in bringing it away from its supposed lodgment in the sigmoid flexure. In the gall-stone cases in which I used the Murphy button there was a difference of from eight to twenty-three days in the expulsion in the different cases.

As to the case of supposed sarcoma in a young girl: In 1890 Dr. Le Fevre, of Blackwood, N. J., sent me a somewhat similar case. The girl, æt. 16 years, had been ill for about three years, during which her abdomen was slowly increasing in size. When I saw her she was as large as at the full term of gestation and was greatly emaciated, with the facies ovariani well marked, but there was something in her appearance which suggested possible tubercular disease. Abdominal section revealed a tumor universally adherent and almost white in color. Tapping reduced its size very little, because the stringy, semi-fluid substance did not readily flow, and because of the very thick, sole leather-like tumor wall. The Fallopian tubes were

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greatly elongated and degenerated in like manner—a most peculiar condition. They appeared to be double their normal length, quite thickened, and rigid; even the bowel wall, which was closely adherent to the tumor, appeared to have partaken of the same change. It was necessary to enucleate the entire mass, which was done by carefully following the point of cleavage with the finger. The tumor was of the right ovary. The patient recovered and was living four years afterward. Dr Deaver referred to the question of enucleation, and advised that the knife should be used instead of the finger. A little more experience will convince him that the pathological conditions in many of these cases render dissection with the finger obligatory, that the knife could not be used. Of course the knife and scissors are sometimes useful for separating adhesions, but not in cases such as this.

DR. C. P. NOBLE.—Papillomatous tumors, as we know, are either benign or malignant—it is very difficult to tell which by the microscopic appearances. In fact, it is sometimes difficult to tell with microscope. I have several times had cases the result of which was certainly very surprising to me. I remember very well the case of a young girl about 16 or 18 in which the tumor was not only adherent, but was incorporated with everything in the abdomen. After working an hour and a half I hadn't even gotten into the peritoneal cavity, and abandoned the operation as impossible, and I was persuaded that this was a case where the papillomatous cyst was malignant. I opened several cysts inside the principal one and packed with gauze. The girl went home with a fistula which suppurated for several months. At the end of four years she was fat and hearty. In that case the tumor was incorporated with everything in the abdomen below the liver. I am quite sure if I had continued the operation she would have died on the table and I would have been unable to remove the tumor.

As to the question of intraligamentary tumors—that is to say, in enucleating tumors from the broad ligament—the methods heretofore used are extremely satisfactory. That is certainly eminently true when we have fibroid tumors to deal with or where the sac wall is so tough that traction can be made upon the tumor during its enucleation. My experience is exactly that of Dr. Baldy in such cases. I have never wounded the ureter. I have drawn it up and carefully peeled it off the intraligamentary tumor several times, but have not wounded the ureter. I have wounded the ureter twice, but not in such cases. I feel certain we have less traumatism and patients do better if operated on by this method instead of by dissecting. As to the question of operating on drunkards and operating on patients having an acute peritonitis, it is the same old question. I personally try to avoid operation in these cases, if possible. I have a number of times, however, made the vaginal incision and broken up pelvic abscesses, and the patients recovered, when I feel certain that had I done abdominal section under the circumstances the patients would

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have died. I congratulate Dr. Baldy on the successful result when he was obliged to operate on this woman in the face of such conditions. I remember very well a woman who had old pus tubes and peritonitis. (I have had at least five or six of them in the last two years.) She had what appeared to be general peritonitis, a thready pulse of 140, a dry, brown tongue; she had been vomiting constantly for two days, and her condition was such that I had no hope at all of saving her life by abdominal section. By making free incisions, from the vagina I evacuated two large abscesses; the symptoms promptly subsided, and she got over the apparent attack of general peritonitis. I question very much, however, whether she or Dr. Deaver's case that recovered had general peritonitis. The fact that she recovered, from my standpoint, simply proved that it was not one of general peritonitis. I was very much interested in the case of Dr. Baldy from the standpoint of drainage. Like him, I have come to the position where I drain almost not at all. In general I feel patients do better without drainage than with it. The conditions are very exceptional in which I would drain, such as wounded, suspicious bowel, old bowel fistula, or preformed abscess cavities with no wall to enucleate. My experience is like Dr. Baer's in reference to Murphy's button. I have repaired a good many damaged bowels, but have not had to resect them. I am sure I would have to resect more if I operated more frequently during the course of acute peritonitis, instead of draining pus sacs under such conditions and postponing radical operation, as a rule, until the acute symptoms have subsided. No one will question the necessity of resection when the bowel itself or the mesentery is so injured as to endanger the integrity or permeability of the bowel; but I am convinced that the frequency of this necessity will be much lessened by care in the selection of the time for operation.

DR. J. B. DEAVER.—There seems to be some misunderstanding relative to the question of my method of removal of cysts. I would not have the idea prevail that with a scalpel I dissect out all cysts that are adherent. I do meet with conditions, however, where you cannot deal with adhesions with gauze as successfully as with the knife and dissecting forceps. I defy any man, under certain conditions, to remove them safely, by which I mean not to damage irreparably surrounding structures, except with scalpel and forceps. As a matter of course I use gauze in freeing the cyst of adhesions in the majority of cases. I congratulate Dr. Baer and Dr. Noble that they have not had cases of such severity as to require resection. There is a good deal of difference between private and general hospital patients; the general hospital patients have very much more severe conditions, I find. I think they misunderstand Dr. Baldy. Dr. Baldy emphatically made the point that the resection was called for on account of the damage done the mesentery. There is all the difference in the world between damaged bowel and damaged mesentery; we know it is mesentery that carries nutrition to the bowel. I have frequently met with conditions

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mentioned by Dr. Noble and Dr. Baer, but I have had to do resection also frequently. I very seldom use Murphy's button. It is a most excellent device, I grant; there is no doubt you can do an end-to-end anastomosis with the Murphy button in less time than you can sew them together, yet I prefer the latter method. I do it on the principle that the simplest surgery is the best surgery. Where the question of time is an important element I think Murphy's button is the best means of establishing the bowel connection. I have had some experience in abdominal sarcomas younger than Dr. Baldy's. One was a child 6 years of age, an abdominal sarcoma operated on with recovery, followed by recurrence in one and a half years; second operation followed by recurrence. I advised that the patient be taken to Dr. Coley and undergo the antitoxin treatment. This was done, but was not attended by any success, the patient dying in a short time of sepsis. I find it necessary to operate on so-called drunkards. I think we can make up for a good deal by stimulating these patients during convalescence. It has always been my rule to adhere to a man's or a woman's habits. If I operate on a drunkard I give him drink; if I operate on a smoker I let him smoke. We oftentimes lose sight of these common-sense principles in surgery. In dealing with the question of peritonitis, in answer to Dr. Noble, I think I am capable of saying whether a patient has had general or local peritonitis. I am familiar with the intricacies of the peritoneum. The question of drainage—I am not in accord with these gentlemen. Perhaps I may be considered a little ancient in this part of abdominal technique, for I do drain many of my cases and see them recover. I may drain some where they would have gotten along well if closed without drainage, but I do not have the experience Dr. Baer has had. In short, much is to be said for and against drainage; but we must all admit that it is safer to err upon the side of safety, that of using drainage, than in not using it.

DR. B. F. BAER.—Of course Dr. Deaver does not mean to be so unfair or unscientific as to assume that, because in one such case as I related self-drainage occurred, therefore drainage must be used in every case. I stated when relating the case my reasons for not placing a drainage tube, and I am not sure that they were not good ones, though I said I had probably made a mistake. Now, Mr. Chairman, you and others who are present remember that it was only a few years ago when every operator almost—in this city at least—was draining in about every case. I rise now to speak because I feel personally responsible for the change which has taken place in that unwise practice. Ten years ago I became convinced that the constant use of the drainage tube was unnecessary and harmful, and I have in this room, before the Obstetrical Society, opposed drainage when I was almost mobbed for the advocacy of such views. Now all, with an occasional rare exception, practise non-drainage. The practice of constantly placing a glass drain is most unscientific and unsurgical. Make the operation com-

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plete and clean, and then keep the intestinal tract, Nature's great drainage tube, open. I believe that more cases recover without drainage, and I am sure that they recover more quickly and with fewer post-operative difficulties, such as fistula and hernia. Then it renders the patient more uncomfortable, because it compels her to remain in the dorsal position when she might otherwise be turned on the side. Further, a drainage tube, besides being a menace to the smooth recovery of the patient, is a source of annoyance and care both to the surgeon and nurse. Who would not be glad to be rid of such an unnecessary nuisance? It is opposed to common sense to interfere with primary union by placing a foreign body in a wound, and Nature shows her resentment by immediately, within a few hours after the tube is placed, sealing it off by a wall of lymph from the abdominal and pelvic cavities. I proved this years ago in several cases in which I reopened the wound to correct some post-operative difficulty which I discovered was caused by the presence of the tube. I then saw the mistake of drainage. There are, however, a few cases where it is better to drain, if only for a few hours. To illustrate: A week ago I operated upon a case of old suppuration which had been draining many months into the bowel. After a dissection continuing nearly half an hour I succeeded in separating the abscess sac, and in leaving, as I thought, a clean cavity, although the pus had been somewhat fetid. I had many times closed apparently similar cases with the happiest result. Two days after the operation evidence of intestinal obstruction developed, and there was slight tympany, with elevation of temperature. I immediately removed two sutures and passed my little finger through the incision. A little odorless, semi-purulent fluid escaped. I then passed a small rubber tube. The bowels moved soon afterward and the trouble was over. It is probable that this case would have recovered without the reopening and drainage, but I think it would have been better to have placed a rubber tube at the time of the operation. I have not used a glass tube for several years. I believe a soft rubber tube is less rigid, less irritating, and perfectly safe. It permits the patient to be moved and there is less danger of injury to the bowel.

DR. DEAVER.—May I ask whether Dr. Baer drains in extrauterine pregnancies? Am I to infer that he would not?

DR. B. F. BAER.—I follow the same practice as to drainage in extrauterine pregnancy as in other abdominal cases. I believe drainage is called for in a smaller percentage of extrauterine pregnancies than in any other abdominal disease. I believe I am stating the exact truth when I say that every case of extrauterine pregnancy that I have operated upon recovered, and I have not drained in five per cent of them.

DR. J. M. BALDY.—My comments on an intraligamentary cyst are that it is no more adherent than a fatty tumor in the back. You have to enucleate. It is entirely different in an inflammatory case. There is no question at all about the bad

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the cases going to general hospitals. I work in a semi-private hospital, and also in a general public one, and the worse cases I get are at the Pennsylvania Hospital Dr. Deaver's remarks as to drainage recalls the fact that he has had experience only on one side. He has always tried drainage and irrigation. If he will give up drainage, then we will be more ready to receive his verdict on the two courses. There is no question of the drainage tube being a nuisance. The sequences of the tube are sometimes worse than the original trouble. We hear certain gentlemen talk about never getting them, but I have a collection of twenty or thirty operated on by one of the most prominent gynecologists in this city, and they have fistulas and hernias; and when he is making these statements as to never having seen a case with bad results follow the use of the drainage tube, some day I propose confronting him with these cases. My practice is similar to Dr. Deaver's in permitting drunkards to have rum to stimulate them until they are convalescent. Then I begin to try to break the habit. The same with opium. I believe in following habits and natural instincts. As soon as the patient is hungry I usually let her eat what she wants. She can have sauerkraut and cabbage, as far as I am concerned.

As to the use of the Murphy button, that is more a matter of experience as to class of cases. I do not believe that any of the gentlemen who have not used Murphy's button would hesitate to resect where the mesentery was badly diseased, with circulation cut off; and I do not believe that anybody would close up an abdomen in which several of the points or one point on the bowel gave out fluid feces. If your stitches would not stay in there is nothing to do but to resect. That was done to one case, and the condition of the other case was a destroyed mesentery. Fortunately it is not often that we have to go to that extent. The needle and suture will most often rectify damage done. The mere fact that we get fecal fistulas from the lower part of sigmoid after simply stitching shows it would have been better to have resected, had it been possible. I have seen several of these cases in which, if I could have resected as easily as if the injury were in the ileum. I would have been only too glad of the opportunity. The Murphy button is very easy to use; it is a simple, straightaway, baby operation. It takes a longer time to control bleeding in the mesentery than it does all other parts of the procedure. That question of peritonitis in operation is one in which there will always be some gentlemen on one side, some on the other. You can only decide the cases you have in hand. If a patient is in a desperate condition I would no more hesitate to operate in the midst of an acute attack than I would hesitate to operate on a woman menstruating.

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TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, March 19, 1897.

The President, GEORGE BYRD HARRISON, M.D., *in the Chair.*

DR. W. SINCLAIR BOWEN presented a

SPECIMEN OF SUBMUCOUS FIBROID OF THE UTERUS.

DR. HENRY D. FRY presented a

SPECIMEN OF INTRALIGAMENTOUS FIBROID TUMOR.

DR. H. L. E. JOHNSON asked Dr. Fry if the sound would not have aided in the diagnosis.

DR. H. D. FRY said the cervix could not be found in this case by digital examination. The sound was an obsolete instrument for purposes of diagnosis, and fortunately so. He did not think it desirable to popularize that instrument.

DR. H. L. E. JOHNSON said the sound was harmless if sterile and in careful hands.

DR. I. S. STONE said the sound might infect the uterus by carrying up germs from the vagina and thus cause sepsis. The sound was dangerous when used to restore displacements, and it was not reliable for diagnosis. He said that those who know how to use it best use it least.

DR. WILLIAM P. CARR said he agreed with Dr. Stone that the sound should not be used for the purpose of restoring displacements of the uterus, but Dr. Johnson was right in what he had said about the instrument. He had never seen any harm come from the proper use of it. There was no more danger in introducing a sound into the uterus than there was in passing one into the urethra.

DR. J. THOMAS KELLEY, JR., read a paper entitled

ABORTION AS AN ETIOLOGICAL FACTOR IN THE PRODUCTION OF DISEASE OF THE PELVIC ORGANS.

Since Noeggerath made the assertion that pyosalpinx, as well as many of the other diseases of the pelvic organs, are caused by gonorrheal infection, we have all been questioning our patients as to the possibility of this disease having existed at some period of their lives; and if they have been so unfortunate as to have had a vaginal discharge and some painful micturition, we find something like the following in the case

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history after the removal of a pyosalpinx: Double oöphorectomy and salpingectomy for pyosalpinx—cause, gonorrheal infection. While not taking up the cudgel of defence for the gonococcus of Neisser, I wish to ask if abortion does not cause rather more aggravated cases of pelvic disease than for which we give it credit. By a close questioning of married women I find a majority have aborted at least once, while only a small percentage have had gonorrhea. Very frequently women who have aborted have done so with intention, and if it was not intentional they frequently wish to hide the fact. These women keep from the physician the history, while, being ignorant of the symptoms of gonorrhea, they are led to tell the whole tale. Again, a woman, having gone over time for a week or two, "takes something" or uses some mechanical means to bring about a return of the flow; and while there has been enough of growth to cause serious infection if allowed to remain, she does not consider that she has had an abortion. That abortion *artificially induced*, as it is done by the woman herself or by a professional abortionist, is attended with danger I think every one admits, but that the ordinary abortion is attended with very grave risk if not properly treated is just as well an established fact. That women do abortions habitually upon themselves, and in some instances with results in getting up that surprise us, I think you will admit. I saw a patient a few days ago who said she had done ten abortions upon herself, and, except that she was frightened when I saw her, she seemed to suffer very little inconvenience and her pelvic organs were in a fair condition. From this it would seem that not every case of abortion produces untoward symptoms and needs vigorous treatment, but from the many cases of serious pelvic disease produced by this cause I am ready to affirm that we should treat every case from the first as if we expected it to develop septic toxemia and pelvic abscesses. Criminal abortion is usually performed by one absolutely unskilled in a practical knowledge of the rules of asepsis, and when the ovum is destroyed he gets his fee and cares not further. The woman, because she bleeds, thinks herself all right until she has been infected either by the dirty instrument of the operator or by the retained products of conception, and pelvic pain sends her to the physician; or, having "taken something" herself or introduced some instrument into the uterus, she hopes she will get well and says nothing about it until her pain sends her to the physician, and usually too late to avoid serious results to her pelvic organs. The placenta and membranes affording excellent pabulum for infectious germs. we might suppose that the infection having reached the interior of the uterus, and these tissues still being present, they would show macroscopical evidence of infection as soon as the patient presented symptoms of pelvic pain and of general toxemia; but that such is not the case many of you have had evidence. A case reported in the *Maryland Medical Journal* of 1896[1] shows fever and

[1] Vol. xxxiv., 21.

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evidence of grave sepsis at the very beginning of the abortion, and the placenta and membranes, having been removed, showed absolutely no evidence of putrefactive change. Surely if this case had been treated by the so-called expectant method the patient would have suffered from general infection, probably pyemia, and possibly death.

It seems to be the opinion of many that the infection from abortion is confined to the pelvic organs and does not extend to the general system, and, if it does, the only evidence of the fact is fever. Dr. Minot, of the Massachusetts General Hospital, reports the following case[1]: "Aborted five weeks before admission to the hospital. Could get no history of the cause, but patient affirmed that the ovum had come away entire. She had a chill two weeks after abortion, with pelvic pain and painful micturition. Patient was much emaciated, pulse small and feeble, entire lower left extremity swollen, edematous, and white. Five days before death, had a large discharge of pus from the bowel. Postmortem showed: Inferior vena cava contained a completely obstructing thrombus in the lumbar region, adherent to the wall of the vessel. It extended upward as far as the liver, and downward as far as the right femoral vein, as a completely obstructing thrombus. The left iliac vein was also completely obstructed Both renal veins contained opaque, white thrombi, not completely obstructing. "A large abscess cavity occupied the pelvis, opening into the rectum. Small emboli were found in both lungs. The heart, liver, and kidneys showed evidence of granular degeneration. Spleen enlarged to three times its normal size."

Another case is cited by Dr. Beck,[2] of London, of pyemia following induced abortion. The patient was four months pregnant. The whole of the placenta was supposed to have come away. For two weeks before the abortion she had suffered with pains in the forehead and temple. She went out five days after the abortion, but was not feeling well. Died the next day.

Postmortem showed pus in the pleural and peritoneal cavities. Kidneys not inspected. Uterus four and one-half inches long and three across the fundus; very soft. The mucous membrane of the cervix had a somewhat honeycombed appearance, caused by the open orifice of the enlarged mucous crypts. The uterine cavity contained a clot of blood adherent at the placental site, beneath which was found a thin layer of placenta adherent to the wall of the uterus. Water injected into large veins in the body of the uterus readily escaped into the cavity at the placental site.

These two cases show plainly that it is useless to expect celiotomy, however so successfully done, to aid in every case, even though the pelvis may contain pus.

Dr. Jacobs,[3] of Paris, reports a case of death following abor-

[1] Boston Medical and Surgical Journal, 1886, vol. cxvi., p. 279.
[2] Transactions Obstetrical Society of London, 1868, vol. iv., p. 275.
[3] Ann. Gynéc., Paris, 1887, vol. xxvii.

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tion in which the infection was pelvic. The abscess, which was tubo-ovarian, ruptured into the peritoneum. The abdomen was opened, but the patient died the same day. Placental débris was found in the uterus, although the uterus had been curetted and irrigated.

Some weeks since a patient came to me, having suffered an abortion nine days before. She was suffering with pelvic pain and had a mucous discharge from the vagina. The tongue was coated, the pulse 100, temperature 99.5° F. The examination showed some enlargement of the left tube and ovary, and very tender. The uterine cavity was curetted and irrigated the same day, and irrigated daily until it was absolutely clean. She was kept in bed and given daily doses of Rochelle salts, keeping the bowels freely moved. Prolonged hot vaginal douches were administered twice daily, and tampons with ichthyol inserted in the posterior vaginal fornix This treatment was continued for two weeks, during which time the temperature became normal and all the general symptoms abated. The thickening in the left pelvis had increased to the size of a large orange. She went to the Garfield Hospital, where I removed a large tubo-ovarian abscess, the patient making an uninterrupted recovery. If the uterus had been emptied within the first twenty-four hours I believe she had been saved the serious operation of celiotomy.

Frequently women are sterile, and after several years of married life develop pelvic inflammation, for which laparatomy has to be done. The history is of extended pelvic pain, but no definite history of either abortion or gonorrhea. These cases are apt to be put down as gonorrhea, but could they not just as well be attributed to abortion?

The preceding cases were only cited as examples and might be multiplied indefinitely, though statistics diagnosing between the two great recognized sources of infection are wanting.

The diagnosis of the gonorrheal infection is difficult, for we are very seldom able to find the gonococcus in the pus, even though the infection is known to be gonorrheal. The treatment of every case of abortion should be a thorough emptying of the uterus as soon as there is evidence that nothing can be done to prevent its occurrence.

The procedure of using a dull curette and irrigating the uterine cavity has become such a harmless and simple operation that I think there is no excuse for not doing both, if there is a doubt that any placental tissue is left in the uterus.

DR. W. SINCLAIR BOWEN said he agreed with Dr. Kelley that abortion was a frequent cause of pelvic disease in private practice, but gonorrhea was a more common cause in dispensary cases. He thought the doctor was right as to the curettage and irrigation. Cases of habitual spontaneous abortion seem to get along well. If retroversion exists, interfering with drainage, it must be corrected.

DR. JOSEPH TABER JOHNSON said the field for discussion

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was a large one. He agreed that incomplete abortion caused much trouble, though sometimes it was not serious enough to require operative procedure. Many women attribute their pelvic troubles to a preceding miscarriage. Abortions criminally brought about were fraught with more danger than were spontaneous ones Women who got up and went about too soon after miscarriage ran great risks. More than half of the gynecological cases he saw were due to badly-managed miscarriages. He thought the subject a most important one because the cases were so numerous.

DR. WILLIAM P. CARR said there was one kind of infection that had not been mentioned—that through the lymphatics—and it was most serious in its results. It caused large collections of pus and much infiltration of tissues.

DR. J. W. BOVÉE said it was sometimes possible to save cases after the infection had passed beyond the uterus into the broad ligaments. He detailed a case which he supposed was a pyonephrosis because there was pus in the urine. But the urinary organs seemed to be only a channel for the escape of the pus. There were several foci of pus in the pelvis outside the peritoneum, which he cured by drainage.

DR. H. L. E. JOHNSON said he had already expressed his disbelief in tubal infection from gonorrhea. Abortion was the underlying cause of the large majority of cases of pelvic disease. He had followed a number of cases, and what the essayist had said was in accord with his experience. The removal of a septic uterus would not relieve a case where a general septic infection existed. Localized collections of pus should be removed, but when general infection existed operation could only prevent further infection. He thought Dr. Kelley's paper an exceedingly valuable one.

DR. F. S. NASH said that Drs. Carr and Bovée were both right. Most married women, during the child-bearing period, had had an involuntary abortion.

DR. I. S. STONE agreed in general with most of Dr. Kelley's paper. He did not understand Dr. Kelley to underrate the influence of the gonococcus as a factor in salpingitis, and asked if he had found cellulitis after abortion.

DR. HENRY D. FRY, speaking of the frequency of maltreatment of recent abortion, said it was astonishing how many general practitioners seemed unable to properly treat miscarriages. Many cases fell under his observation that were due to neglected abortions. He saw more fatal results from neglected abortion than from labor at full term. If cases had gone so far as to require more than curettage, if the abdomen was opened for the removal of the tubes, the uterus had better be removed also, because the infection is there.

DR. J. THOMAS KELLEY, JR., replying to Dr. Stone's interrogation as to cellulitis following abortion, said he had seen some references to it. He said that many cases that were put down as due to gonorrhea were probably due to abortion. He did not deny that gonorrhea was a cause of pelvic trouble.

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DR. I. S. STONE read a paper entitled

THE INFANTILE UTERUS.[1]

DR. JOSEPH TABER JOHNSON said he had not looked up the literature of infantile uterus, but the writer did not refer to Sir James Y. Simpson's article in which attention was first called to the subject. Nor did Dr. Stone refer to the frequency of the cases. Tait said that one-half of the cases he saw in "Chambers" were due to infantile uteri. The results spoken of by Dr. Stone were true. It might be expected that lacerations would occur. There might be a developed body with an infantile cervix. Many of these cases get along well, though the women are frequently barren. Women had had children and afterward their uteri became infantile by superinvolution. The treatment by steam pessaries, etc., had done more harm than good. The only thing to do was to treat the symptoms; build up the general health. Electricity sometimes did good, but its intrauterine use had done harm.

DR. H. L E. JOHNSON said he had seen numbers of undeveloped uteri. Treatment had not done much good. The majority of the cases seen by him had short and stubby cervices and were retroflexed. Uteri of infants examined post mortem by him were longer than might be imagined.

DR. WILLIAM P. CARR said he was surprised to hear that the treatment of the infantile uterus had been so unsatisfactory. He had seen a number of cases suffering from dysmenorrhea and anteflexion which were relieved by dilatation.

Stated Meeting, Friday, April 2, 1897.

The President, GEORGE BYRD HARRISON, M.D., *in the Chair.*

DR. H. L. E. JOHNSON presented

A POLYPUS REMOVED FROM THE URETHRA BY WIRE LOOP.

DR. W. SINCLAIR BOWEN asked if any similar growth had been removed from the patient before. He said his reason for asking the question was that they were so likely to reappear.

DR. JOHNSON replied that none had been removed before.

DR. JOHN VAN RENSSELAER read a paper entitled

THE NEED OF CARE IN INSTRUMENTAL DILATATION OF THE CERVIX UTERI.[2]

DR. J. W. BOVÉE said the operation of dilating the cervix uteri was necessarily a frequent one. There was no doubt of

[1] See original article, p. 30. [2] See original article, p. 66.

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the necessity for great care in its performance. It was exceedingly rare for lacerations of such dimensions as mentioned in the paper to occur in the virgin uterus. In one of his cases he had considerable laceration, but the cervix was very soft and spongy, and he closed it by suture at once. A great danger was from infection. It may not appear immediately, but it was similar to that occurring, after childbirth, through the lymph and venous systems. Any laceration occurring, except very slight ones, should be repaired at once.

DR. THOMAS C. SMITH said that all physicians must recognize the necessity for great care in the use of instruments for the purposes indicated in the paper, but he was doubtful as to the good results of dilatation of the cervix uteri for dysmenorrhea. He had seen some cases, that had been most carefully treated in that way, which were not only not benefited but were injured by it. He detailed a case of a young girl whose cervix had been dilated to such a degree that he could readily pass his finger up to the internal os, and a sound could be passed without difficulty to the fundus uteri. She had worn a stem pessary with benefit. He inquired as to what could be the cause of this persistent dysmenorrhea. He thought it was probably due to embryonic tissue which had not been removed. He related another case that came under his observation that had been treated by dilatation for dysmenorrhea by able men in a neighboring city, which had not been relieved in the slightest degree of the intense suffering that accompanied each menstrual period. He had seen no case of dysmenorrhea that had been benefited by dilatation of the cervix uteri.

DR. J. THOMAS KELLEY, JR., said he agreed with what Dr. Van Rensselaer had said. The many failures to relieve dysmenorrhea by dilatation were due to failure to make a proper diagnosis as to the cause of the dysmenorrhea. He had seen some lacerations due to efforts at dilatation. but they were not so extensive as those described by Dr. Van Rensselaer.

DR. A. F. A. KING said he had repeatedly dilated the cervix uteri to a moderate degree for dysmenorrhea, thereby affording relief for some time, and while the cervix remains patulous the woman may become pregnant and be thus permanently relieved. Authorities are not agreed as to the causes of dysmenorrhea One, eminently distinguished, said there was no dysmenorrhea without obstruction; while another, equally eminent, said obstruction was not a cause of dysmenorrhea.

DR. H L. E. JOHNSON said the paper was a good one, and he commended the careful measures recommended for the purpose of securing asepsis. He criticised some of the instruments used for dilating the cervix uteri, as some dilated laterally and not antero-posteriorly, the usual direction of flexions, and for that reason were not efficient for an anatomical reason. Those which had several blades and stretched the canal in every direction should be used. He did not think much good was accomplished in dysmenorrhea by dilatation of the cervix. He

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thought cases were due to other causes than stenosis. Infantile uterus, diseased tubes and ovaries, were causes. Curetting will relieve some cases. It was necessary to look carefully for the cause.

DR. JOHN VAN RENSSELAER said most of the speakers had lost sight of the purpose of the paper. He had not gone into the causes of dysmenorrhea, but was considering the necessity of care in instrumental dilatation of the cervix. He was surprised to hear Dr Smith say he had seen no case of dysmenorrhea that was benefited by dilatation of the cervix. Where stenosis existed it certainly relieved.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

TENTH ANNUAL MEETING, HELD IN ST. LOUIS, MO., NOVEMBER 9, 10, AND 11, 1897.

The Association met at the Southern Hotel and was called to order by the President, DR. GEORGE BEN. JOHNSTON, of Richmond, Va.

DR. C. A. L. REED, of Cincinnati, read a paper entitled

GALL STONES IN THEIR RELATION TO CANCER OF THE GALL TRACT.

The paper was based upon a report of four cases in which distinct gall-stone history had preceded the history of malignant disease. The diagnosis had been confirmed in all of them by exploratory incision and in two of them by autopsy.

CASE I.—Woman, age 52. Had hepatic colic during five years preceding, associated with all of the usual gall-stone symptoms. During the preceding thirteen months pain in the right hypochondriac region had been constant. Within the preceding six weeks persistent jaundice had developed. Globular tumefaction was felt below the costal margin. Exploratory incision revealed primary carcinoma of the gall bladder and of the gall tract, with secondary development in the liver. Diagnosis confirmed by autopsy.

CASE II.—Male, age 60. Had gall stones for twenty years; confirmed by their frequent passage per vias naturales. Patient had undergone rapid emaciation, and during the preceding month pain had become constant. More latterly he became pronouncedly jaundiced. No physical symptoms could be detected. Exploratory incision revealed carcinoma of the gall bladder and gall ducts, with secondary nodules in the liver. A calculus was found in the common duct and disintegrated by

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needle puncture. Primary recovery with amelioration of all symptoms, followed by death four months later. No autopsy.

CASE III.—Woman, age 45. Had had hepatic colic for several years. During the preceding six months she had been profoundly jaundiced Lost flesh rapidly. Examination of the blood revealed marked cholemia. There were no physical symptoms in the right hypogastrium. Exploratory incision revealed induration about the head of the gall bladder and common duct. to both of which the duodenum was firmly attached for a distance of several inches. Calculus could be felt within the common duct just within its orifice. This could not be dislodged by prudent pressure or disintegrated by needle. It was delivered by incision through the duodenum. Patient never rallied, but died within thirty-six hours after the operation. No autopsy.

CASE IV.—Man, age 52; constant drinker. Had severe attacks of hepatic pain during preceding fifteen years. Last attack was persistent and continued for over six weeks. In addition to the usual symptoms he had a vacillating temperature and sweats. Operation revealed empyema of the gall bladder with induration at its ductile end. The gall bladder was stitched to the abdominal incision and drained. Death a week later. Autopsy revealed carcinoma of the ducts at their juncture. Numerous small calculi were found in the hepatic duct well up in its main trunk and in a number of its twigs. Multiple abscesses were found in the liver substance.

These cases have a suggestive significance and point to an etiological relationship. This is explained by the result of persistent irritation of the foreign bodies upon the mucous surfaces, inducing hypertrophy, cell proliferation, and, in the event of the existence of original tendencies to cancer of antenatal origin, they induce rapid development of the malignant neoplasm.

DR. EDWIN RICKETTS, of Cincinnati, said the important question of the relation of gall stones to cancer of the bile ducts was now receiving the attention due it. In many of these cases cancer had been found near the duodenal end, and the malignancy which results from the presence of gall stones is of such a nature that in many instances the surgeon could not get at the bottom of the pathological condition except by an exploratory incision. He reported two interesting cases. He said Courvoisier had found malignancy in seventy of eighty-four cases of gall stones, while Bradrowski had found forty cases of cancer straight.

DR. JOSEPH EASTMAN, of Indianapolis, spoke of a case that had come under his observation within the last two weeks which confirmed the remarks of the essayist. He operated on a patient who had symptoms of gall stones, and the patient's friends insisted that she had passed several of them. The gall bladder was thickened and indurated. So far as he could determine there were no gall stones, but advancing malignant disease, which will ultimately destroy the life of the patient. The

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gall ducts were obstructed. He did not remove a section for microscopic examination. He believes that cancer here, as in the uterine cervix, is often the outgrowth of prolonged localized irritation.

DR. JAMES T. JELKS, of Hot Springs, was fully satisfied that cancerous troubles can occur from chronic irritation, as has been said. Thus far no specific organism had been shown that produces cancer. While his experience was not large in this direction, he had seen cancer of the uterus unmistakably produced by gall-stone infection; hence the deductions of the paper in urging operative interference in all these cases, in order to prevent carcinoma of the liver, were prudent. The statistics were a revelation to him, as he did not know that ninety per cent of the cases of carcinoma of the liver were preceded by a history of gall stones.

DR. RUFUS B. HALL, of Cincinnati, expressed himself as being firmly convinced that the deductions from the paper would be sustained by future work along this line. Nine cases tabulated by him confirmed the deductions of the essayist. He cited one case. Eight years ago Drs. Reed and Ricketts saw him do a gall-bladder operation on a patient who had given a distinct history of gall-stone colic for fourteen years. There was occasional icterus, and then a period of comparative freedom from it for half a year, and then there would be another attack of gall-stone colic. The last attack came on four or five months preceding the operation, when the patient became icteric and so remained until surgical interference was resorted to. She had a distended gall bladder and enlarged liver. There was some doubt as to whether or not there was a complication other than an impacted gall stone in the common duct. Operation revealed a distended gall bladder with four or five stones in it, and cancer of the gall ducts. Undoubtedly the cancer in this case was of recent development, dating perhaps from the patient's last illness. Dr. Hall thought that if she had been operated on preceding the last eight months of her illness cancer might not have developed.

DR. A. M. CARTLEDGE, of Louisville, said that while he did not question the practical nature of the deductions drawn from the paper, yet it was much easier to establish a causative relation between cancer and gall stones than it is between gall stones and cancer. When the frequency of gall stones is considered, and that they occur in perhaps one case in three of every individual, and that carcinomatous processes in the gall ducts are among the most frequent of all causes of gall stones, it was not at all unlikely that in reasoning on this subject the cart was sometimes placed before the horse. When we have a positive, well-established history of gall stones for several years, and an individual develops malignant disease of the gall bladder, the inference was strong that there might have been a relation between the previously existing calculus trouble and the subsequent malignant disease. In many cases presenting a history of the passage of gall stones the patient may

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have had beginning carcinoma of the ducts for two or three years previously. He indorses the views of the essayist as regards operative interference in cases of gall stones.

DR. L. MCLANE TIFFANY, of Baltimore, agreed with Dr. Cartledge that the causative relation between gall stones and carcinoma was not well established at the present time, but that carcinoma was accompanied by gall stones and found frequently to exist was well known. These cases should be operated upon sooner than is usually done.

DR THADDEUS A. REAMY, of Cincinnati, took a more conservative ground than the preceding speakers, and said that the Association ought not to go on record to the effect that. because gall stones are associated with cancer, the abdomen of every man or woman must be cut open lest he or she, as the case may be, may have cancer. Taking the rural and city populations, he ventured the opinion that in not more than fifteen or twenty per cent of cases of gall stones was cancer associated with this condition. The subject would have to be studied more carefully and thoroughly before the proof is convincing to him.

DR. REED. in closing, emphasized the significance of the persistent coincidence of cancer in long-standing gall-stone cases. His own brief experience embraced cases in which there had been long-standing antecedent gall-stone history.

DISPOSAL OF THE STUMP IN APPENDICITIS OPERATIONS

was the title of a paper by DR. W. D. HAGGARD, JR., of Nashville, Tenn. The author considered this disease pre-eminently a surgical affection. Early surgical opinion in making a diagnosis was essential Surgical isolation of the infected appendix was as sound and imperative a practice as the hygienic isolation of any of the infectious diseases. The author advocated early operation, and mentioned Mayo Robson, Willy Meyer, and McBurney as advocating prompt operative interference. The more imperative and explicit operative indications were specified.

The pioneer method of ligating the appendix like an artery or the stump of an ovarian tumor or appendage pedicle was shown to develop therefrom by reason of infection of the stump, etc. Subsequent perforation after simple ligation occurred sufficiently often to cause the abandonment of this method. The various methods of disposing of the stump by invagination were discussed, and the modifications and technique employed by Van Hook, Dawbarn, McBurney, Murphy, and Morris were described. The ideal of all surgery was completeness applied to the surgery of the appendix, which was that of total extirpation of the organ The author stated that it had remained for Deaver to practise this method in suitable cases, which is as follows: After freeing the appendix from adhesions and meso-appendix, the cecum is stripped of its contents and grasped between the fingers and thumb of the left hand, the

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appendix being held by forceps and cut off flush with the colon, and, after being amputated at the site of its former junction, is united by continuous Lembert sutures, while the cecum is still held securely with the left hand just as in a gunshot or stab wound of the intestine. Sutures may be disposed in two layers, first uniting the edges of the wound, and, second, approximating the peritoneal covering to the cecum over it. This method was not applicable to cases where the cecum is bound down by adhesions preventing its delivery in the incision. It is necessary to prevent the escape of colon contents by accurate suturing of the cut end.

Total excision of the appendix with closure of the hole in the head of the colon was said to do away with the following dangers: (1) subsequent perforation of the stump under the ligature from infection in its own cavity, (2) abscess of the wall of the cecum from invagination of the infected stump, (3) continuance of infected process from stricture in the stump between distal ligature and the proximal opening of appendix into the cecum, (4) imperfect invagination with incomplete drainage of the stump on account of the cecal wall being thickened and stiffened with inflammatory exudate.

The author reported five cases in which he has recently employed this method with entire satisfaction

DR. GEORGE H. NOBLE, of Atlanta, followed with a paper entitled

REPORT OF FOUR CASES OF ABSCESS OF THE UTERUS.

The first case was of a puerperal origin, the operation being done at the end of the second week. There was a pus tube and abscess of the left ovary. The appendages on the right side were normal. After separating extensive adhesions for unilateral disease, an abscess of the fundus uteri about the size of an ordinary lemon was discovered, which was excised, curetted, and cauterized with carbolic acid. The cavity extended from the median line to the stump of the appendages on the left, which was turned into it and fastened with sutures to prevent the formation of dead space. A glass drain was dropped into Douglas' pouch after flushing the abdominal cavity. This woman made an uneventful recovery and has been well for two years without any pelvic disturbance.

Three similar cases were reported in detail by the author.

The four cases show what any surgeon will sometimes do for a septic uterus when given a chance. They also support the view that it is not always necessary to extirpate the womb in suppurative inflammation of its parenchyma, and such operations should be confined more closely to cases in which the uterus is thoroughly septic or riddled with abscesses. The latter are rare, fortunately, for they do not stand operations well. The cases also show that infection of a puerperal uterus does not necessarily mean that the entire organ is hopelessly

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contaminated, but that intense foci may be circumscribed by Nature and removed without sacrificing the uterus.

DR. A. M. CARTLEDGE indorsed the method pursued by the essayist. He thought the recovery of four women with systemic infection by such a procedure showed the wonderful power of the peritoneum, if drained from below, to take care of a violent form of sepsis. The results following this method were better than those of hysterectomy for infected uterus complicating childbirth or abortion.

DR. J. WESLEY BOVÉE was pleased with the advanced position taken by the author of the paper. Gynecologists had to fear, however, the future usefulness of the uterus. It was not so much the destruction of tissue and the formation of abscesses, but the resulting cicatricial tissue and connective tissue formed might interfere with the function of the uterus in subsequent labor. It might tend to the production of rupture of the uterus. At the same time these points were not of sufficient importance to justify operators in not following out a conservative procedure such as had been described.

DR. T. J. CROFFORD, of Memphis, said in cases of abscess of the uterine wall originating from the mucous membrane, if the cervix was kept dilated, the uterus freed of everything with a curette—and he did not hesitate to use a sharp curette in these cases—and thoroughly cleansed and packed with gauze, these abscesses would open into the endometrium, followed by relief in the majority of cases.

DR. RICHARD DOUGLAS called attention to the kind of germ that produces infection. In well-known streptococcus infection it was not the tendency of inflammation following this form of infection to circumscribe itself. It was diffuse infection. In treating cases of infection following abortion or full-term labor he had used the Carossa method with decided benefit.

DR. W. E. B. DAVIS, of Birmingham, said that uterine abscesses following abortion or the puerperal state could be treated successfully by incision and drainage in a good proportion of cases, even though the abscesses may have extended beyond the uterus. Illustrative cases in which this treatment was resorted to were cited.

DR. J. G. EARNEST favored an exploratory incision to ascertain whether or not the patient was a fit subject for the method of treatment pursued by Dr. Noble. In the event the case was not suitable for the application of this method very little damage was done by such an incision.

DR. R. M. CUNNINGHAM said it was extremely difficult in general surgery to get primary union by curetting and disinfecting an abscess. By curettement and cauterization it was hard to destroy the staphylococcus, and much more so the streptococcus, which perhaps extends beyond the abscess wall and continues its infective influence.

DR. NOBLE, in closing, emphasized the point that the uterus was the seat of infection, and not the appendages. Only in

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cases where there are one or two, or possibly three, abscesses is this method of treatment applicable.

A STUDY OF RETROPERITONEAL NEOPLASMS AND SUPPURATIONS, WITH SPECIAL REFERENCE TO DIAGNOSIS.

By Dr. RICHARD DOUGLAS, of Nashville, Tenn.—The author accepted the definition of Mr. Lockwood for retroperitoneal neoplasm, namely, a solid or cystic tumor growing behind the peritoneum into the folds and not connected with any of the great retroperitoneal organs.

Pathology.—The type of tumor usually encountered in the retroperitoneal space belongs to the connective-tissue group. A careful study of the cases shows that they are of a mixed variety, the predominating type being sarcoma and lipoma, but occasionally fibroma and myxoma are met with. An analysis of the twenty cases of solid retroperitoneal tumors collected by Rogowski showed sarcomatous tissue in every one. The peculiarity of retroperitoneal sarcoma is that it is encapsulated. These tumors occur after maturity, from 28 to 59 years. Mudd's patient, the oldest on record, was 71 years of age. In one case reported by Austein the patient, a female, was 4 years of age, an age in which sarcoma is very rarely observed. The duration or life history of retroperitoneal tumors is usually about six months, though some cases have lasted for years.

Causation.—There is no recognized cause for these growths, yet in some cases a malignant growth appears as secondary to some local injury or suppuration. The two special symptoms that occur in the history of post-peritoneal growths are intestinal obstruction and edema of the extremities.

Retroperitoneal Cysts.—A genetic classification of retroperitoneal cysts is more difficult, in view of our very meagre knowledge of the subject, than that of solid neoplasm.

The author then considered at length cysts of the pancreas.

A clinical feature of intraperitoneal growths is that the area of resonance varies with the position of the patient; consequently it is not surprising that many a dry tap has been made through a failure of recognized clinical peculiarities.

While not an advocate of the use of the aspirator in intra-abdominal diagnosis, yet under proper conditions the author thinks this instrument will reveal valuable evidence, not only as to whether the growth is solid or cystic, but as to its nature. In retroperitoneal sarcoma aspiration reveals only a little blood or blood serum in the needle. This sign enabled Weir and Bull to correctly diagnosticate a case reported by Devlin.

DR. J. WESLEY BOVÉE, of Washington, D. C., contributed a paper on

TUBAL AND OVARIAN HEMORRHAGE RESEMBLING RUPTURED ECTOPIC PREGNANCY.

The author said that a few years back pelvic hematocele was

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a condition that every practitioner appeared to meet occasionally, and many were the supposed causes of it. When the subject of ruptured tubal pregnancy was so universally taken up, some of the most aggressive investigators told us to search in every case of pelvic hematocele and we would find a ruptured ectopic pregnancy. This dictum, though not indorsed by all observers, found a ready following, and to this time the majority of students of diseases of the female pelvic organs have accepted it. Many cases have been reported in which a presumptive diagnosis of ruptured tubal pregnancy has been made —cases in which such symptoms as shock, sharp pain, irregularity of menstruation, even to amenorrhea, the presence of a small tumor in the pelvis, and even death, were present; and yet the autopsy has revealed no pregnancy, but instead a hemorrhage from a Fallopian tube or an ovary, or both. The speaker offered conclusive evidence against the positive statements that have gone out that we will always find this condition in these hemorrhages. There were many instances in which women were deeply wronged by these diagnoses. Oftentimes the hemorrhages have occurred in virgins at a very young age and in widows above reproach. These hemorrhages result from ectopic pregnancy; from malignant disease of the uterus, appendages, or rectum; from varicosed veins in the broad ligaments; from disease of the appendix; from inflammatory dis ease of the tubes and ovaries, and many other causes.

The author's remarks were restricted to disease of the appendages, and he cited a case in detail to exemplify them.

An examination of the specimen removed by operation showed it to be a hemorrhagic cyst of the ovary that had opened into the peritoneal cavity, and was connected with the cavity of the Fallopian tube by a sort of canal or sinus formed by adhesions over the shallow groove of the ovarian fimbria of the Fallopian tube. The remainder of the fimbriated extremity was closed by adhesions The tube was distended by a large blood clot, quite dense and dark, and which upon section and careful separation showed nothing but blood. The wall of the cavity left after removal of the clot from the tube was perfectly smooth and even. As a result of careful examination, including the use of the microscope, the case was pronounced one of hemorrhage without the presence of pregnancy.

DR. RICHARD DOUGLAS had twice removed hematosalpinx (unilateral) in which there was no possibility of extrauterine pregnancy. He also reported an interesting case of blood cyst of the ovary in which there was no disease of the tube and no special cause giving rise to it. Usually the cause of blood cyst of the ovary was torsion of the pedicle. This was not the cause in the patient he had operated upon.

DR. T. J. CROFFORD reported a series of anomalous cases of extrauterine pregnancy before the Tennessee State Medical Society this year. One of the cases was complicated by an ovarian cyst as large as a good-sized fist. He had come to the conclusion that these cases were all due to ectopic gestation.

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Personally, he was obliged to the essayist for disabusing his mind of this. He had examined the specimen of Dr. Bovée with a great deal of interest, and believed there was no pregnancy connected with it.

DR. J. G. EARNEST, of Atlanta, Ga., reported a case of

EXTRAUTERINE PREGNANCY OPERATED ON AT THE SEVENTH MONTH.

The patient was 36 years of age, the mother of several children. Patient came under his care September 19, 1897. Five months before he had been called to see her on account of profound collapse which threatened life. A history of irregular uterine hemorrhages was elicited and a diagnosis of ruptured tubal pregnancy on the left side was made. Patient rallied somewhat, but her condition was such that it was feared she would die under the anesthetic if an operation was done. Operation was deferred and nothing further was heard from her until the date mentioned. At this time the doctor found the abdomen distended by a tumor on the left side and in the centre as high as the umbilicus. On the right was another and apparently distinct cyst filling that side of the pelvis and extending well up into the abdomen. The enlarged uterus could be felt in the centre merging into a large tumor. Upon opening the abdomen a large tumor, occupying the centre and left side, presented a surface somewhat irregular, very dark in color, and traversed in every direction by large blood vessels that stood out prominently on the surface, reminding the author of an enormous broad-ligament cyst. The enlarged uterus was enclosed in this mass. and the shading-off of the tissues was so nicely done that it had every appearance of a tumor springing from the uterus. The tumor of the right side was about the size of an adult head, about one-quarter of an inch thick, and seemed to be distinct from the large one, the dividing line dipping down between them about half the diameter of the tumor. To the larger mass were attached several coils of intestine, which were dark and changed in texture at the points of contact. The cyst on the right side peeled out without much hemorrhage. But with the work of peeling off the placenta from the pelvic and abdominal wall began the flow of blood, which was appalling. Pushing it as rapidly as possible, the mass was loosened and iodoform gauze quickly packed in behind it. The cyst was still unbroken and had the appearance when lifted up of being a fibrocystic tumor of the uterus, the uterus following forming the stem from which it sprang. The author concluded to remove the uterus and drain through the vagina. As the uterine arteries could not be reached, a wire attached to a serre-neud was thrown around the uterine body, tightened, and the mass cut away. The patient was now in such a critical condition that the author abandoned draining through the vagina. He tied the uterine and ovarian arteries and packed the cavity with iodoform gauze, which was brought out at the

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lower angle of the wound, and closed the abdomen with silkworm gut. A large compress of cotton was firmly fastened over the abdomen by a very tight binder and the patient put to bed. Gauze removed on the sixth day; on the eighth day fecal matter passed from the drainage tract. From this time until she left the hospital, October 30, most of her feces passed by the fistula. Five days after she went home he was informed that she was having free rectal evacuations with a corresponding falling-off of the discharge from the fistula. If the fistula fails to close spontaneously the patient will return to have it closed by operation.

The large tumor was covered entirely by an enormously expanded placenta beginning in the bottom of the pelvis, firmly attached to the pelvic and a portion of the abdominal wall, its villi reaching well down into the tissues. From the top it was deflected from the abdominal parietes over beyond the centre, everting the body of the uterus. In the cyst thus formed was found a fetus of about seven months.

DR. L. MCLANE TIFFANY, of Baltimore, read a paper entitled

CYSTIC DISEASE OF THE MAMMÆ.

He said the occurrence of cysts as a confusing element in the course of solid tumors of the breast was not so uncommon and might greatly resemble the subject dealt with in his paper, yet the clinical history and anatomy of cystic adenomata were sufficiently clear and the prognosis sufficiently important to justify careful study. In most cases an accurate diagnosis could be reached before operation. Dr. Tiffany reported 11 cases that showed many symptoms in common.

CYSTIC FIBROADENOMA OF BREAST.

He had examined three of these tumors, and, as they agreed so closely both in microscopic and macroscopic appearances, a description of one would answer for all.

Macroscopically.—The breast is full and hard, with numerous small nodules to be felt under the skin, but not adherent to it. These nodules vary in size from a pea to a walnut. Some of them feel as though they contained fluid. On cutting through the breast normal glandular tissue is seen to be replaced by a hard, dense white tissue with innumerable cysts containing either glassy, sticky fluid or a cheesy material. The fluid varies in color. In some cases it is white and transparent; in others green, red, yellow, or a dirty brown.

Microscopically.—Sections were taken from various parts of the tumor, hardened in a ten per cent solution of formalin for twenty-four hours and in alcohol. They were embedded in colloidin and stained by the ordinary method with hematoxylin and eosin. Under the microscope the sections presented the following appearance: There is a mass of white fibrous tissue including cysts, fat, and tubules. The tubules are lined with

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several rows of cuboidal epithelial cells and are massed in discrete areas presenting somewhat the appearance of an intracanalicular growth. In some localities the tubules are seen to be much dilated in parts, completely filled with cells, while outside they are surrounded by a well-marked area of round-cell infiltration. Here and there in the tubules are to be seen loose, desquamated cells, granular and swollen, presenting somewhat the appearance of the cells of sebaceous glands. These cells have very deep staining nuclei, and when seen in the smaller tubules are deeply pigmented, of a brownish color, as though blood-stained; and as here and there one can find the remains of red blood corpuscles, this is probably the case. Many of the ducts are lined with papillary ingrowths made up of cylindrical cells which take eosin well. The tubules present all stages of dilatation up to large cysts; many of the cysts are lined with several layers of cells resembling pavement epithelium. The fibrous tissue, which is so abundant, is rather wavy, not very cellular, and well supplied with blood vessels. It stains very faintly with eosin.

The diagnosis of benign cystic fibroadenoma is perfectly clear.

Dr. Howard A. Kelly, of Baltimore, read a paper on the

SOURCES AND DIAGNOSIS OF PYURIA.

He began by stating that if he were asked what subject in the entire range of medicine and surgery he considered it most important to bring prominently before the profession at present, he would probably reply, pyuria. The subject is important on account of the great number of undetermined cases under treatment and on account of the progressive nature of some forms of the disease, as well as on account of the facility with which the diagnosis can now be made with better means of investigation. Pyuria, of course, signifies merely the presence of pus in the urine; this may be in large or in small quantities, and may proceed from any part of the urinary tract from the external urethral orifice up to the cortex of the kidneys.

The investigation of a pyuria is an analytical one, taking the symptom and trying to trace its origin. The best way to investigate a pyuria is to begin by making an examination of the urinary tract, following an anatomical order, proceeding from below upward. The history of the case, the microscopical and bacteriological and chemical examinations of the urine, must be carefully made, and all facts ascertainable by palpation must be elicited first. The direct investigation then proceeds in an orderly manner, beginning with the external urethral orifice, where Skene's glands may be distended with a drop or two of pus; the urethra may be in a state of intense inflammation and even ulceration, affording sufficient pus to yield a decided sediment in the urine. Sometimes a suburethral abscess may pass

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unnoticed for many months, in spite of the fact that it contains from a teaspoonful to a tablespoonful of pus.

The vesical sources of pyuria are from a cystitis, including a trigonitis, or inflammation of the trigonum; foreign bodies creating a cystitis; ulcers associated with a cystitis or tubercular in their nature. These affections will all be readily recognized by making a cystoscopic examination of the patient in the knee-breast position through a simple cylindrical speculum. By this examination the cystitis will often be found to be well localized and in patches, which may be readily treated by direct topical applications. Upon removing a foreign body, the cause of a cystitis, the pyuria disappears. Ulcers seen through the cystoscope may be treated with strong solutions of nitrate of silver, curetted, or cauterized. There are also a number of extra sources of pyuria, and these arise most frequently from tubal and ovarian abscesses breaking into the bladder across the base of a broad ligament.

If the pyuria does not come from the lower urinary tract it must then come from one of the ureters or kidneys; a telltale blush around a urethral orifice often marks the side from which the pus issues. I have found pyurias from the upper urinary tract proceeding from strictures of the ureter with a gonorrheal, tubercular, or other infection. The site of the stricture and the source of the pyuria may be readily located in these cases by passing a urethral catheter, a metal one for the low strictures or a flexible one for those above the pelvic brim.

Renal pyurias are, after all, the commonest of all, and he finds that these are most frequently caused either by a calculus in the pelvis of the kidney or by a tubercular pyelitis or by a hydronephrosis which has become infected. Such pyurias are often the occasion of the presence of large amounts of pus in the urine, appearing either continuously or intermittently. By passing a renal catheter well up into the pelvis of the kidney the pus may be evacuated and the pelvis washed out. If the pus is too thick to flow through the catheter it may be thinned out by injecting a little fluid.

By making an orderly investigation of this sort the pus is traced to its origin, and the source of the disease discovered and treated and the cause eliminated, if possible. just as we would seek to investigate the source of the contamination of a body of water by taking a boat and travelling up the muddy stream until we had located the point at which it entered the main body, and until we found that above this point the water was free from contamination. The methods proposed are safe in careful, practised hands.

Dr. William H. Myers, of Fort Wayne, Ind., followed with a paper on

THE EARLY DIAGNOSIS AND TREATMENT OF CANCER OF THE UTERUS,

in which he first dwelt upon the various theories respecting the

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nature of cancer, the last theory being that the disease was in its origin purely local. If we adopted the view that cancer appears first in a certain locality and that danger consists in its extension from that locality to remote organs, then we were in a position to advance arguments in support of early diagnosis and treatment. To make an early diagnosis the physician should observe closely and reflect upon the history of the case as detailed by the patient. He should encourage her to accurately describe every symptom and urge her, with all the force which the strongest conviction of a necessity imparts, on a local examination. How seldom do physicians have an opportunity of making an early diagnosis! Patients come to physicians after the disease has passed the limitations of surgical aid, their cases regarded as inoperable so far as a permanent cure may be promised.

He said the clinician will depend upon the following facts: the rapid development of the case, non-specific character of the ulceration, age of the patient, increase after 30 years of age, marriage (in 1,000 cases 771 married), hemorrhage, pain, fetid discharges, and general cachexia. When the two last symptoms occur it is highly probable that the case is already inoperable, while far the most important symptom in the early stage of the disease is hemorrhage. and in support of this the author quoted some of the ablest authorities.

Terris and Hartmann give a record of 35 cases with a mortality of 23.5 per cent. They put down recurrences at 70 per cent and cures at 30 per cent. Richelot published, in 1892, 225 operations with 11 deaths, 5 per cent. Burke in 1892 gives a summary of the operations, 273 in number, with a mortality of 10 per cent. In 1894 Abel and Landau. of Berlin, gave 93 cases, with a mortality of 5.4 per cent. In 1895 Richelot, 44 cases of cancer, 3 deaths, a total mortality of practically 5 per cent. These figures for operations were given to indicate how little inherent danger there may be in the operation itself.

In regard to recurrence after operation, Winter divides the cases observed into three classes: (1) recurrence by metastasis, (2) lymphatic recurrence, and (3) local recurrence. Only 2.5 per cent of women operated upon suffered from metastasis. Lymphatic recurrence is important. Blair, in postmortem examinations in 203 cases, found infection of the glands 40 times. Local recurrence is by far the most frequent of the results of incomplete removal of the affected tissue, and is by infection from cancerous material coming in contact with freshly wounded tissue. The following statistics give cases in which no recurrence took place: Fritsch, 36 per cent after five years; Hofmeier, 33 per cent after four years; Schauta, 47 per cent after two years; and Olshausen, 19 cases out of 40. Leopold gives 76 cases, with 72 still well, without recurrence of the disease, from one to five and one-half years after the operation, and not "in absolute health after five and one-half years," as stated in one of the medical journals of recent date.

Dr. Myers considered the value of the microscope to have been

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overestimated as an aid in the clinical diagnosis of cancer, and quoted several high authorities in support of his view. He closed by saying that the knife had become the emblem of gynecological treatment. It had supplanted the curette, intrauterine injections, caustic applications, the quaint conceits of the monkish craft, and the brutal records of the cancer cure. The knife had become, in a surgical sense, the specific therapy of this particular disease.

DR A. M. CARTLEDGE, of Louisville, Ky., read a paper entitled

OVARIOTOMY IN THE AGED.

It was not the author's purpose to discuss in detail neoplastic developments in structures supposed to have reached the quiescent or annihilation stage of retrograde metamorphosis, nor to dwell upon any special features of operative methods in very old women who were the subjects of ovarian cysts. He merely wished to place on record a case especially interesting as the result of the advanced age of the patient and the easy manner of her convalescence from the operation of ovariotomy.

On May 10, 1897, he was requested by Dr. C., of Illinois, to see his mother-in-law, Mrs. W., born October 29, 1816. Married fifty-six years; mother of ten children, and no miscarriages. She was never a strong woman, but does not remember to have had any serious illness. She passed the menopause at the age of 49 normally. Eighteen months before the doctor saw her, or about January, 1896, her family noticed some abdominal enlargement, and soon thereafter she complained of the usual pressure symptoms of an abdominal growth. Latterly the gastric and digestive disturbances from pressure had been very troublesome. Emaciation and ovarian expression appreciable, but not marked. An examination revealed the abdomen well filled with an encysted growth, which was diagnosticated as ovarian.

Naturally the great age of the patient—80 years, 7 months, and 15 days—made the decision as to operation a debatable one. He was aware of the case of Homans and one or two others of ovariotomy in women of such extreme age, and determined, if the general condition justified such a course, to operate. Fortunately the patient, aside from her age, had every reason demanding an operation. Her general physical condition was unusual for a woman of her age, and, while always frail, she was very active and maintained this activity to a remarkable degree in her declining years. Another feature in deciding the question of operation in such cases is the condition of the intellect. This patient was very unusual in this regard, being possessed of the mental capacity of the average woman of 65. She had been accustomed to taking long walks and reading the morning papers with keen interest. She was an active member of her household.

An operation was deemed justifiable, and a frank statement of her condition made to the patient. She unhesitatingly

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accepted the operation, which was performed May 12, 1897. Chloroform was the anesthetic employed. The ovarian cyst originated from the right ovary, was multilocular, and weighed about forty pounds with fluid. There was slight adhesion to the anterior parietes and omentum. The operation consumed fourteen minutes. The remaining ovary was not larger than a small bean, but could be recognized as such. The uterus was about the size of the thumb. There was no appreciable shock; the pulse was about 100 at the beginning of the anesthesia and in the eighties when the operation was completed. Her convalescence was the easiest he had ever seen after an ovariotomy; no vomiting, little pain, sleeping five hours the first night. Her condition was practically normal in forty hours. She sat up on the 26th of May, or fourteen days after the operation, and left the Infirmary the seventeenth day after operation. She is now in her eighty-second year, has recently made three quilts, and is as active and happy as a woman of 65.

Few ovariotomies have been performed in women aged 80 years or more, but the results have been so favorable in the reported cases that we are justified in urging operation if the general condition warrants. Homans' case at 82 years and 4 months, Owens' at 80, and Matthew Owens' at 87 are the most prominent. In the Johns Hopkins Hospital Reports, vol. iii, page 509, 1894, are collated and tabulated by Drs. Howard A. Kelly and Mary Sherwood 115 cases of ovariotomy in women of 70 years of age, most of them being from 70 to 74. The results about equal those in younger women. In 150 ovariotomies Dr. Kelly has operated five times in women over 70. Dr. Cartledge has operated seven times in women over 60 years; none over 70, except the subject of this report.

IMPROVED TECHNIQUE IN OPERATION FOR INTRALIGAMENTOUS CYST.

DR. RUFUS B. HALL, of Cincinnati, Ohio, read a paper on this subject. After reviewing the literature the doctor said he believed the mortality from operation for intraligamentous cyst is much higher than the statistics would lead one to believe. A large per cent of the deaths are due to hemorrhage, either on the table or within a few hours after they are put to bed. He thought the operation he proposed would save many lives, as it was practically a bloodless one. It is applicable to those cases where the adhesions are very firm and the cyst cannot be easily stripped from the pelvic floor.

The operation is as follows: First tap the cyst and empty it. Ligate the ovarian artery on the tumor side at the pelvic border; ligate the ovarian artery on the opposite side outside the healthy ovary. Divide the broad ligament. Divide the peritoneum above the top of the bladder and push the bladder down. Ligate the uterine artery on the healthy side. Cut across the cervix and clamp or ligate the uterine artery on the tumor side. The blood is then cut off and the patient has not

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lost a drachm of blood. The capsule of the tumor can now be divided above the top of the bladder and at a suitable point behind, and the tumor enucleated from below upward with very much greater ease than from above downward, and with corresponding safety to the ureter, the rectum, and the iliac vessels. Close the peritoneum over the pelvic floor with a running suture of catgut. This method brings every part of the field of operation into view. The ureter can be seen, recognized, and pushed aside. The adhesions are separated along the line of cleavage, instead of against it as in the old method.

Then followed the presentation of a specimen and report of a case illustrating the operation and the class of cases to which it is especially applicable.

DR. H. TUHOLSKE, of St. Louis, Mo., read a lengthy and exhaustive paper entitled

PERSONAL OBSERVATIONS IN ABDOMINAL SURGERY.

DR. GEORGE J. ENGELMANN, of Boston, presented a paper on

SYMPHYSEOTOMY AS COMPARED WITH OTHER OBSTETRIC OPERATIONS,

and illustrated his remarks by diagrammatic sketches.

Symphyseotomy was not as attractive an operation as is Cesarean section or the Porro operation, yet it was very successful as compared with Cesarean section. It was the successful all-around operation for the city and country. The mortality statistics of the different operations were given and compared. There has been no trouble in union of the pubic bone after symphyseotomy. Quite a number of women have been delivered by a second symphyseotomy, and it has been found that while the pubic bone was slightly separated it was nevertheless firmly united with connective tissue. There was no trouble in the locomotion of women so operated upon. A number of cases are also reported of normal labors having followed symphyseotomy. The first operation in this country was performed by Dr. Williams, of Dennison, Texas. Dr. Engelmann showed what had been accomplished by symphyseotomy, and said that surgeons must be guided in a measure by that. It required good judgment on part of the surgeon to decide what operation to do in cases of contracted or deformed pelves.

The following officers were elected for the ensuing year:

President—Dr. Richard Douglas, of Nashville, Tenn.

Vice-Presidents—Dr. H. H. Mudd, of St. Louis, Mo., and Dr. James A. Goggans, of Alexander City, Ala.

Secretary—Dr. W. E. B. Davis, of Birmingham, Ala.

Treasurer—Dr. A. M. Cartledge, of Louisville, Ky.

The next meeting of the Association will be held in Memphis, Tenn., on the second Tuesday in November, 1898.

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TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of November 3, 1897.

The President, C. J. CULLINGWORTH, M.D., *in the Chair.*

MR. BLAND SUTTON presented a paper

ON ABDOMINAL HYSTERECTOMY FOR MYOMA OF THE UTERUS, WITH BRIEF NOTES OF TWENTY-EIGHT CASES.

Recent improvements in the methods of performing hysterectomy have been followed by such good consequences that abdominal hysterectomy for myomata of the uterus too large to admit of vaginal myomectomy is now rapidly gaining favor, and it is becoming a plain duty to point out to patients with uterine myomata, as we do when they have ovarian tumors, that the earlier the tumors are removed the less the operative dangers, and therefore a diminished peril to life. It is for the purpose of showing how safely uncomplicated myomata of the uterus can be dealt with that I have ventured to place brief records of twenty-eight cases, operated upon at the Chelsea Hospital for Women and the Middlesex Hospital, before this Society.

Whenever possible, especially when operative interference is necessary during the menstrual period of life, I reverse the conditions of oöphorectomy, so that instead of removing the ovaries and Fallopian tubes and leaving the uterus and tumor, I remove the uterus and tumor and leave one or both ovaries with the corresponding Fallopian tube. This happened in fourteen cases in the subjoined list. The immediate results of this method are admirable and spare the patient at least the inconvenience of an acute menopause.

[The record concerns twenty-eight cases treated at the Chelsea Hospital for Women and the Middlesex Hospital. Of these the seventh and eighth died. The remaining series of twenty-six recovered, and is, as far as known, the longest successful list at present recorded in Great Britain. The report is restricted to hospital cases, and the register numbers are carefully given, so that any person may, if he wish, consult the clinical histories in the hospital records.]

MR. ALBAN DORAN insisted that while an ovarian cyst nearly always caused death if not removed, a large number of uterine fibroids remained stationary and harmless. Others, however, entailed discomfort and danger, and then the surgeon must consider which is the safest operation. Altogether the retroperitoneal method seemed the best. He found that in cases

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where the tumor was large but the cervix free the operation was especially satisfactory. The arteries were easily reached or felt and secured; the cervix could then be divided and the healthy mucus which it contained was free from germs. The patient was saved from the inevitable direct and secondary evils of the serre-neud. This advantage was marked in six very anemic cases where he had successfully operated; in one there was a sloughing submucous growth which caused no trouble after the operation. He had lost two cases where the operation had certainly been deferred far too long. Unhealthy mucus in the cervix was a source of peril in sickly subjects. No operation for burrowing and cervical fibroids could be free from danger; enlarged branches of the uterine arteries were here a source of peril. Mr. Doran objected to leaving the Fallopian tubes behind, and always endeavored to take them away with the uterus undivided. Their contents were often unhealthy. As to the abdominal sutures, no method was perfect. The numerous reports sent in at the Geneva Congress in 1896 tended to show that in every case the last method adopted by each authority was the best insurance against hernia. The fallacies in such evidence were obvious.

DR. PLAYFAIR said that he agreed with the President as to the great practical interest of Mr. Sutton's paper, but first he must take exception to the sweeping conclusion that had been arrived at that removal of the appendages was not to be performed in any case of fibromyoma. In his experience, in properly selected cases it was one of the most valuable operations and the results were occasionally most brilliant. He was aware that this was not the opinion of the most forward school of hysterectomists either in America or England, who seemed to hold that the mere existence of a fibromyoma, whether it produced symptoms or not, was a sufficient ground for hysterectomy. He held this theory to be most dangerous and untenable. Dr. Duncan had shown that evening quite a small fibroid, not bigger than a large orange, which he had removed by hysterectomy. Some of the Fellows had criticised this procedure and said he should have removed it by vaginal enucleation. He contended, however, that if Dr. Duncan had performed oöphorectomy he would have subjected the patient to infinitely less risk and have obtained quite as good a result. The small mortality, which was practically *nil.* following oöphorectomy was one of the chief grounds for selecting it in suitable cases. Even in Mr. Sutton's cases there had been a mortality of 7 or 8 per cent. Conceive what it would be in less experienced and skilful hands. It seemed to him absurd to compare the risks to which a patient was subjected in performing oöphorectomy and hysterectomy. Another point he might remark on was the operation to be elected. He felt sure that the extraperitoneal method and clamp were doomed. The long, painful convalescence was most terrible, and no fact seemed to him more certain than that the intraperitoneal plan had come

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to stay. He strongly advocated suture of the parietes by three separate layers.

DR. HORROCKS was surprised that no mention was made of Baer, who first described the operation. Dr. Galabin published a paper on it, and later Mr. Harrison Cripps brought forward some cases before the Society. At the discussion on that paper he (Dr. Horrocks) had ventured to describe the operation with the serre-neud as a barbarous one, and, although exception was taken to the word at the time, opinion was now largely against this so-called old operation. In one case, after using the serre neud, the patient had so much pain from the dragging of the pedicle that he opened the abdomen the second time and completed the operation by Baer's method, and the patient had been well ever since. One thing surprised him very much, and that was the large number of cases operated upon by certain operators. He could not but think that in many of these cases no operation whatever was required, for it was a well-known fact that fibroid tumors were in the majority of cases innocent tumors. They stood on quite a different footing from ovarian cysts, which almost invariably proved fatal when let alone. This point had a bearing on the mortality of Mr. Sutton's cases, for if all the 28 cases were bad cases of fibroids, causing grave symptoms of hemorrhage and such like, the loss of 2. or a mortality of 7 or 8 per cent, could not be called great He had done the operation twelve times, with one death in a case complicated with albuminuria. Each of these cases was most serious, and none of them so small as some of those in Mr. Sutton's list. He could not agree that the mortality of the operation was as low as that of ovariotomy. He thought 7 per cent a high mortality in ovariotomy in these days of asepsis. He entirely agreed on one point, viz., the importance of leaving the patient one or both ovaries when they were healthy. He himself had done this in several instances and considered it a far greater mutilation to remove the ovaries than to remove the uterus.

DR. ROBERTS thought it was a pity that the history of the cases had not been fully given, particularly as to the points in the symptoms which had rendered the operations described necessary. He could not agree with Mr. Sutton in many points. Surely a very large number of fibroids seen did not require operation at all. He thought the sweeping assertion as to clamp and belt made by Mr. Sutton was undeserved.

MR. MEREDITH expressed his entire dissent from the views held by the author of the paper regarding the duty of recommending early operation in cases of uterine fibromyoma—a course rightly adopted in the case of ovarian tumors. The two diseases are not comparable as regards the necessity for operative interference, since the great majority of fibromyomatous growths do not tend to imperil life and may never require surgical treatment, while ovarian tumors, on the other hand, inevitably prove fatal unless removed. It should be borne in mind that the fact of recovery after an operation by no

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means absolutely implies that the treatment adopted was a necessary procedure. The author's views on the value of the intraperitoneal treatment of the uterine stump would appear to be founded upon somewhat insufficient data, viz., the results of only 28 operations, of which 2 proved fatal. The speaker's experience with the serre-neud had given him 83 recoveries out of a succession of 90 abdominal hysterectomies, including a run of 30 cases without a fatality, and two series of 40 and 47, respectively, with but two deaths in each—results which had not as yet, so far as he knew, been equalled by advocates of the intraperitoneal method. At the same time, however, he fully recognized the advantages of the shorter convalescence required by this latter plan of treatment, and he had, therefore, now adopted it for some six months past with very satisfactory results. Mr Sutton did not hesitate to say that the operation of oöphorectomy had now been entirely superseded by intraperitoneal hysterectomy; but he (Mr. Meredith) still considered the operation in question to be a most valuable and efficient method of treatment in suitable instances, giving a mortality in his experience of something under 3 per cent.

REVIEW.

UTERUS AND CHILD FROM THE FIRST WEEK OF PREGNANCY TO THE BEGINNING OF LABOR. By G. LEOPOLD. An Obstetrical and Anatomical Atlas of 30 plates, with explanatory text. Leipzig: S. Hirzel, 1897.

This atlas consists of a collection of drawings from Nature. They represent, in a series of frozen sections, pregnancy from its earliest stages to the time of labor. Leopold's publications have always excelled by their thoroughness, artistic perfection of the accompanying plates, and careful attention to details. In this work, however, he has surpassed not only his own previous results, but also those of other authors.

The plates demonstrate the development and structure of the placenta from the first to the last month of pregnancy, the position and presentation of the fetus, the mechanism of labor, the lower uterine segment, the internal os, and, finally, the placenta of extrauterine pregnancy. One ovum each of the first and second weeks of pregnancy are of the greatest interest and value through the fact that they were obtained in relation with the containing uterus. The first part of the work consists of the histories and descriptions of the specimens, and the microscopical observations. The second part discusses the results obtained from the investigations of the specimens. A work of such magnitude has necessarily a limited circulation, yet its contents are of the greatest scientific value; thus we consider a brief recapitulation of some chapters a both thankful and useful task.

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The decidua vera is described in the first chapter; the description differs but slightly from Leopold's former publications. The marked contrast between the mucous membrane of the uterine cavity and the cervix is pointed out. The decidua vera at the end of pregnancy preserves the same character as during the first week. but, owing to the stretching and dilatation of the lower uterine segment, it is much thinner. The decidua capsularis (reflexa) completely surrounds the ovum at the end of the first week. Except for the absence of an epithelial lining it has the same structure as the vera. Leopold's description of the decidua basalis (serotina) is exceedingly interesting and insructive. The growing villi penetrate and disintegrate the inner surface of the floor of the ovum, changing the decidual cells into cloud-like masses. The adjoining capillaries become dilated, forming a network of sinuses, which are connected with the intervillous spaces. In the first days of pregnancy some of the decidual cells arrange themselves to frame-like structures which contain blood vessels and grow toward the chorion. These tissue strands are termed decidual beams and represent the first beginning of the placenta. In his graphic description Leopold says: "The decidua basalis represents the foundation of the house, while the decidual beams are the columns and rafters around which the walls and partitions are constructed." Growing of the villi into the utricular glands, as stated by Reichert, was not observed. All villi, both recent and old, are covered by only a single layer of epithelial cells, but Langhans' cell layer is sometimes seen in the interior of the villi. This observation refutes the statement that their epithelial lining originates from the maternal epithelium. Contrary to the observations of Ruge and Hofmeier, Leopold found the external layer of the basalis to contain remnants of glandular structures in the form of elongated spaces lined with epithelium, which persisted until the end of pregnancy. From these structures the new mucous membrane is said to form itself during the puerperal state. This theory is contrary to the statements of Pels-Luesden, who ascribes this function to the serotinal giant cells. According to Leopold the connective-tissue cells form the origin of the serotinal giant cells. The former theory, that the physiological thrombosis of the uterine veins is caused by an invasion of these giant cells, is shown to be an erroneous one. This thrombosis is observed in the early months and is caused by a proliferation of the intima.

In the development of the placenta, the description of the chorionic epithelium is especially interesting and exceedingly valuable for a better understanding of the etiology and character of deciduoma malignum. It is stated that the external covering of the villi is exclusively of fetal origin. Their inner layer (Langhans' layer) originates from the connective tissue, while the external epithelial layer represents the syncytium. Langhans' layer disappears completely after the third month. The syncytium becomes thinner with the advance of pregnancy.

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An endothelial covering of maternal origin was not found, but during the desquamation process the thinned syncytium may resemble an endothelial covering. The functions of the syncytium during the growth of the villus are to disintegrate the decidual tissue and to erode its vessels. Contrary to the statements of Costa and Hofmeier, a villus was seen to contain blood vessels as early as the first and second weeks of pregnancy. Leopold's investigations of the cervix and lower uterine segment during pregnancy and labor agree with the observations of Franqué, Pestalozza, and others. The cervical canal never contains the ovum unless labor has begun. The mucous membrane of the uterus and the cervical canal differ in character; the latter is never changed into decidua, and thus can never aid in the growth and formation of the placenta.

The limited space at disposal forbids a more detailed description. We have selected only a few fragments, and trust that these will convey some idea of the character of Leopold's work. In some points the results of his observations will be final and obviate further discussions. In other chapters his investigations open new fields inviting further labor and development.

The plates and specimens forming the basis of this atlas were used by Leopold as an aid in clinical instruction. In his preface the author states that he would consider the time and labor expended well repaid if others also, like himself, would find this atlas a useful aid. We trust that his hopes will be fully realized, and heartily recommend the work to those who can afford to possess it. (The reviewer has prepared an English edition, which will shortly be published by Hirzel, of Leipzig.)

J. R.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Abortion.—For the treatment of abortion H. J. Garrigues[1] advises instrumental dilatation of the cervix and removal of the fetus by blunt forceps with heart-shaped or oval rings, and of the placenta by the finger and dull wire curette. Before and after curettage the uterus is flushed with one per cent creolin. If pregnancy has passed three months, he then packs the uterus with iodoform gauze before tamponing the vagina, otherwise the latter is sufficient. The tampons are removed on the second day, and a vaginal douche of one per cent carbolic acid is given twice daily. The patient remains in bed at least a week.

Eclampsia.—Prutz[2] has collected about 500 cases, which he subjected to a detailed analysis of the pathological changes of the various organs. Some of the cases could not be used on account of it being difficult to decide whether the pathological condition found was caused by eclampsia or puerperal sepsis.

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In 368 cases the kidneys were examined; of these, in only 7 cases the organs were found healthy; nephritis existed in about 46 per cent, while in the remaining 54 degenerative processes were found. It is questionable whether the latter are of a primary or secondary character. Dilatation of the ureters was reported in 37 cases, in part being one sided. In 213 cases there existed changes in the liver, mostly of a hemorrhagic character and frequently complicated by necrosis. Capillary thrombosis is believed to be the cause of necrosis. In 4 cases there existed rupture of the liver capsule with internal hemorrhage. Investigating the cerebral changes, hemorrhage is also the principal cause. In all 232 cases were investigated; of these, 28 per cent had cortical hemorrhage. The hemorrhages were in part capillary, in part quite extensive; in the latter cases caused by a rupture of large vessels. In discussing the lungs Prutz finds broncho pneumonia of frequent occurrence. Both stomach and intestines show frequent extravasations of the blood into the mucous membrane, often the result of erosions. Spleen, pancreas, and suprarenal capsules present thrombosis, hemorrhages, and infarctions. Hemorrhages are most frequent. They are found in the serous membranes, mucous membranes, the skin, muscles, and at times the thyroid gland. The changes in the genitals are mostly in the form of subserous hemorrhages. The importance of the white infarctions of the placenta is highly over-estimated, placental embolism being generally of a secondary character. The pathological changes in the organs of the children of eclamptic mothers have been imperfectly studied and should receive greater attention. However, degenerative or inflammatory processes in the kidneys have been described. Complications play a very important part, especially pneumonia and cerebral hemorrhages. The bacteriological examinations of urine or blood have all been faulty, and conclusions based upon them are not acceptable. However, the question as to the bacteriological origin of eclampsia can most probably be answered in the negative. The investigations as to the presence of ammoniacal substance in the blood, the increase of leucomaines, and carbonic acid intoxications are still incomplete, also those directed to the toxic condition of the blood serum and urine. It is probable that more extensive investigations of these points will throw more light upon the etiology of eclampsia. All these investigations lead to the conclusion that eclampsia is not always of one and the same origin. In grave cases of nephritis uræmia is the probable cause, while in many others the etiology cannot be explained.

W. F. Gardener[1] records a case of eclampsia successfully treated with chloral and bromide of potassium with inhalation of chloroform.

After briefly reviewing the various theories as to the cause of eclampsia, Dreier[1] concludes that the most rational treatment of this fatal disease consists in a rapid evacuation of the uterus. Dührssen's method of deep incisions is considered rather dangerous. Dreier proposes a modification of Haultain's method.

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The cervix is dilated with the index finger or Hegar's dilator sufficiently to admit two fingers; then Braxton Hicks' method of combined version is performed, a foot is brought down, and both by traction upon the foot and dilatation with the finger full dilatation is accomplished. The placenta is removed by hand. The author is not an admirer of tamponing the uterus with iodoform gauze, as advocated by Dührssen, but believes that bimanual compression is more advantageous. He reports 3 cases thus treated, with 2 living mothers and 2 living children.

Extrauterine Pregnancy at the Eighth Month; Living Child.—Spörlin.[5] The woman was 36 years old and had five previous confinements. The sac containing the fetus was adherent to the intestines and abdominal wall. Upon attempting to remove the sac considerable bleeding ensued, and for this reason it was deemed best to leave it undisturbed and to tampon the cavity with sterilized compresses. The operation was followed by severe collapse, which for a time threatened the patient's life; however, her condition improved and recovery was uncomplicated. The child was delivered alive, but died after a few days from general debility.

External Examination in Obstetrics.—Léopold[6] holds that normal labors can be conducted with the aid of external examination alone, and that in such cases internal examination should be restricted as much as possible.

A. Pinard[6] emphasizes the importance of abdominal palpation in all pregnant women. It is invaluable in the diagnosis of normal or complicated, single or multiple, uterine or ectopic pregnancies. The existence of certain conditions, such as triple pregnancy, hydrocephalus, etc., can be absolutely determined in no other way. During pregnancy it often points to the necessity for operative interference; during labor it is secondary in value to internal examination; during the third stage it becomes as useful as vaginal palpation; and subsequently is the only form of examination permissible except in certain pathological conditions.

Hemorrhage during and after Labor.—A source of hemorrhage during and after labor is illustrated by a case of D. A. Hodghead.[7] Delivery was rapid, the head being born during the third pain after rupture of the membranes. A tear of the vestibule occurred, extending in the median line from just below the clitoris nearly to the meatus.

Inversion of the Puerperal Uterus.—A primipara, 23 years old, who gave a history of anemia, dyspepsia, dysmenorrhea, and fluor, and who also had two miscarriages, presented, a quarter of an hour after a normal delivery, marked symptoms of internal hemorrhage accompanied by abdominal pain. The placenta appeared at the vulva three-quarters of an hour later, preceded by very severe expulsive pains. The attending midwife found the removal of the placenta more difficult than usual. Solberg,[8] who saw the patient about three hours postpartum, found marked symptoms of collapse and loss of blood. Examination showed a complete inversion of the uterus. The replace-

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ment of the organ was easy. The uterus contracted well; no further hemorrhage. The patient did not react, in spite of all methods of stimulation, but died three hours later.

Lithopedion.—J. G. Clark[9] reports a case in which an extra-uterine fetus was removed from the abdominal cavity four years after rupture of the gestation sac. It was undergoing saponaceous mummification and calcareous changes. The calcareous change was limited to an enveloping membrane, skin, and lungs, the remainder of the internal organs showing only those changes due to fatty degeneration and absorption of their watery constituents.

Ovarian Pregnancy.—H. J. Rowe[10] describes a case of true ovarian pregnancy found at post-mortem examination. The right ovary was much enlarged, ruptured, and contained a well-developed fetus with cord attached to a rudimentary placenta in the ovary.

Puerperal Infection.—Of the treatment of puerperal infection E. E. Montgomery[11] says that when examination determines the absence of anything within the uterus which should afford a cause of high temperature, associated with profuse discharge, or possibly in the beginning an arrest of lochia, and particularly where there is redness or swelling of the vagina, exfoliation of the mucous membrane, presence of diphtheritic exudation upon or ulcerations of its surface, the condition should be recognized as sepsis and treated with antistreptococcic serum, local cleanliness, and constitutionally supporting measures. He reports several cases successfully treated in this manner.

R. R. Kime[12] strongly condemns the use of the curette and tampon, and of opium and coal-tar derivatives except as temporary measures in cases of extreme pain and very high temperature. He advises drainage with the softest, most pliable, and largest sized tubing the cervix will admit, with plenty of openings in the uterine portion and three openings in the vaginal portion below a cross-bar by which it is retained. This should be removed and disinfected once or twice daily, and the uterus freely irrigated with boiled water or weak solutions of carbolic acid, boric acid, creolin, or with tincture of iodine if the uterus is flabby. In severe cases a strip of gauze may be used along the side of the drainage tube. The bowels should be kept open with salines.

Bumm[13] observed 750 confinement cases, in 22 per cent of which he noticed a rise of temperature. In 16 per cent the fever was due to causes not related to labor; in 29 per cent no cause could be found; in the remaining 55 per cent the fever arose from infection of the genital tract, streptococci causing 13 per cent. gonococci 7 per cent, putrid infection 35 per cent, while in one case colon bacilli were found. The latter case ended fatally. Streptococcic infection was characterized by mildness of the attack.

Savor[14] administered antistreptococcic serum in 19 cases of puerperal infections, and concludes that it is of absolutely no

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value in the treatment of this condition. In every one of these cases the presence of the streptococcus was conclusively demonstrated. The serum produced no bad symptoms.

This serum has been employed by C. J. Stansby[15] in two cases of puerperal infection in which the patients were delirious. In each consciousness was regained, the temperature fell, and subsequently recovery occurred.

Gonorrhea.—J. F. W. Ross[13] considers that when a woman is delivered with proper aseptic and antiseptic precautions, even after she has undergone frequent vaginal examinations, there is ground for suspecting gonorrheal infection if fever develops. Gonococci in the lochia may confirm the diagnosis. The curette should not be used in the presence of acute gonorrhea, as it is one of the surest ways of causing extension of the disease to the tubes and ovaries.

Phlegmasia Alba Dolens.—After a tedious labor observed by F. M. Willcox[16] phlegmasia alba dolens occurred in one leg, and was followed by gangrene of that foot. There was no sign of sepsis preceding the affection. The patient appeared to be recovering when the other leg became affected and death took place.

Physometra.—Three cases of this complication of labor are reported by G. Fieux.[17] Two terminated fatally. After considering its etiology, the writer summarizes it as displacement upward of the presenting fetal part. Physometra may be due either to the introduction of air into the uterus, in which case the child is usually alive and the gas of small quantity; or to the addition of the gases of putrefaction caused by germs carried in with the air, under which circumstances the child may be dead, gas present in large amounts, and this may be expelled from the vulva, being recognized by its fetid odor. None of these symptoms, however, should be relied upon absolutely in differentiating the two forms of physometra. Distension and tympanitic resonance of the uterus are of more value, as these are marked only when putrefaction occurs. In this form artificial labor is demanded, and should be followed by thorough and prolonged, or even continuous, disinfection of the genital tract, with general tonic and stimulant treatment. Reckless curettage is very dangerous, as the uterine walls have been distended and rendered friable by contact with gases of putrefaction.

Peripheral Neuritis of Pregnancy and the Puerperium.—E. S. Reynolds[18] has made a study of 30 cases previously classified by Eulenberg, 2 recorded by himself, and 17 others which he has collected. The writer looks upon sepsis and incessant vomiting as the most potent factors in producing the condition; the former was found in 15 of the 49 cases, the latter in 11. In septic poisoning it is admissible to assume that the toxins set up the neuritis, just as occurs in diphtheria. As regards the incessant vomiting, two views may be taken. First, that the vomiting itself is due to a toxin, and probably that the neuritis is due to the same toxin. A second explana-

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tion, which Reynolds suggests as a hypothesis, may be that the incessant vomiting sets up a condition of acetonemia, and that the acetone or some allied body in the blood produces the neuritis, just as may possibly occur in the neuritis of diabetes. In 4 cases there was a distinct alcoholic history, and in many tenderness on deep pressure of the muscles, suggesting a possible alcoholic origin, though this is not the cause in the vast majority of cases. The disease usually begins with sensory disturbances, especially in those parts which are afterward affected with paralysis of motion. These consist of numbness, tingling, hyperesthesia, paresthesia, or severe pains, often shooting in character. In not a few cases there was well-marked tenderness on deep pressure of the muscles and great tenderness on pressure of the nerve trunks. Later there may be anesthesia of certain parts, but in cases of recovery this disappears before the restoration of motor power. The sensory symptoms are followed very soon by motor troubles, and in some cases the motor come on simultaneously with the sensory disturbances, and progress very rapidly over the whole body, ending in speedy death from respiratory failure. In 23 cases both legs and arms were affected, the former usually first. The prognosis as regards complete recovery is worst in the generalized forms, and is best in the partial cases, especially where the arms only are affected. It would seem that, as in alcoholic paralysis, years may elapse before absolute recovery, so that treatment by massage, etc., must be long continued.

Placenta and Fetal Membranes.—This subject was thoroughly discussed at the recent Congress of German Physicians in Brunswick.[19] The first paper was read by *Herff*, who, after reviewing the literature, states that, although understanding the structure of the complete placenta, we are ignorant of the origin and formation of the intervillous spaces. As to the time when these spaces first appear we are absolutely uninformed; we only know from the investigations of Leopold that this must take place at a very early date. Physiology teaches us that numerous substances travel from mother to child through the placenta. The passage of crystalline materials, such as sugar, salts, and so forth, may be explained by osmosis. The fetus, however, requires large quantities of colloids, albumen being its only source of fat. Here purely physical laws do not suffice, and the only means by which the albumen could reach the fetus would be after a peptonizing process occurring in the placental tissues. The only portion of the placenta capable of performing this function is the protoplasmic villous covering—namely, the syncytium. We also know that this peculiar tissue is at times the seat of malignant growths. The syncytium, therefore, is of both physiological and pathological importance. It is important for us to know whether the syncytium is of connective-tissue origin or is altered maternal epithelium or endothelium, or whether it is of purely fetal origin. These important questions, however, can only be decided after fully understanding the process by which

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the ovum becomes engrafted upon the uterine mucous membrane and the subsequent formation of the reflexa. These processes have never been observed in the human being, and the mode of procedure can only be suspected. We must, therefore, to obtain an inside view into the formation of the reflexa and the origin of the syncytium, look to the animal kingdom for analogous processes.

Kossmann reports his experiments and observations with the placenta of rodents and other animals with the object of discovering the etiology of carcinoma syncytiale. The syncytium arises from the maternal epithelium, and not from a layer of ectoderm as stated by Duval. These aforementioned types of carcinoma, or deciduoma malignum as termed by other authors, consist largely of true syncytial structure. If the syncytium were of fetal origin the most anomalous condition would exist—that an original fetal cancer would grow and extend into the maternal structures instead of into the fetus. Kossmann, however, considers syncytium to be nothing else but altered uterine epithelium. In carcinoma syncytiale we have to deal with cases of cancer in which the uterine tissues have assumed an abnormal character. The facts that metastases in syncytial cancer are generally scattered by means of the vascular system does not weaken this theory. The blood channels in the puerperal uterus are widely distended, and it is not difficult for particles of syncytium to be swept into the general circulation. We also have in this an explanation of the not infrequent finding of the villi in these metastases. In regard to the relations of the vascular mole and syncytial cancer, Kossmann believes the cancer and not the mole to be the primary growth. The cancer produces abnormal nutrition in the fetal structures and thus causes their abnormal development.

Syncytial Tumor.—Schmorl[13] reports a case of vaginal tumor of syncytial structure. The tumor was observed eighteen weeks after a normal confinement in a woman 30 years old. The woman died six months later. The uterus and adnexa were found to be healthy, while the lungs, liver, kidneys, and intestines contained numerous cancerous metastases. Both the tumor and the metastases present the typical syncytial structure. In Schmorl's opinion the vaginal tumor was a metastasis of a placental tumor, the latter being expelled during labor without having caused intrauterine infection. In a subsequent discussion of this case Fraenkel states that in his opinion Schmorl's case strengthens the theory which holds that the syncytium is of fetal origin.

Placenta Previa at Chrobak's Clinic.—Doranth.[14] 216 cases of placenta previa occurred among 30,796 confinements. Thus its frequency was 1 case in 143 deliveries—7 per cent. It is much more frequent in multiparæ, and the liability increases with the confinements. Miscarriages occurred in 14—4 per cent; premature labor, 53—5 per cent; and full-term deliveries, 32—1 per cent. The hemorrhages began as a rule in the sixth

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month (lunar) and were most frequent during the last three months of gestation. In 75 per cent the first hemorrhages appeared only three days before delivery. The lower the implantation of the placenta the more early and severe is the hemorrhage. Placenta previa centralis occurred in 26 per cent; lateralis in 59—1 per cent; deep implantation in 14—9 per cent. If at the time of operation or examination the internal os was found to be covered by placental tissue, the case was regarded as a central implantation. The vertex presented in 62—6 per cent; pelvic presentations, 14 per cent; transverse presentations, 20—3 per cent. Operative interference is noted in 81—4 per cent, while in the remaining 18—6 per cent—the delivery was spontaneous; the latter includes cases in which the vagina or cervix was tamponed or the membranes ruptured. Spontaneous delivery had a fetal mortality of 36—1 per cent—but the mothers were all saved. After operative interference the maternal mortality was 11—4 per cent; that of the child, 83—5 per cent. Version was the most frequent operation. The mother's chances are best served by leaving, if possible, expulsion of the child to Nature's powers. In 11—1 per cent—manual removal of the placenta was resorted to. Postpartum hemorrhage necessitated in 12—5 per cent—tamponing of the uterus and vagina. In 1 case there was uncontrollable hemorrhage, originating in part from a deep tear in the cervix; vaginal hysterectomy; death one hour postpartum. In 69—4 per cent—the puerperium was afebrile. The maternal mortality in all the cases was 9.3 per cent; of these, 3.2 per cent died from sepsis. The postmortem in 3 cases showed extensive injuries to the uterus and cervix in consequence of the version. The chances of securing a living child decrease with the lower implantation of the placenta.

Forty-six cases of placenta previa occurred during the years 1874 to 1896 in the clinic of Dr. Kezmarscky.[10] In 9 cases the implantation was central, in 25 marginal, while 12 belonged to the lateral variety. Eleven cases were primiparæ, 35 multiparæ. One case occurred in every 351 confinements. The treatment consisted in tamponing with iodoform gauze, if the hemorrhage was severe and the os did not admit two fingers. The tampon is not to be removed unless saturated. If the hemorrhage continues with undiminished severity, version after Braxton Hicks is performed. In slighter cases interference is delayed until the os is more dilated, after which the membranes are ruptured; and should this not suffice it is followed by podalic version. In 10 cases the delivery was normal. In 2 cases the accouchement forcé was performed, with one death from a tear into the cervix. In 13 cases out of 21 version was followed by immediate extraction. One patient was brought to the clinic in a dying condition from loss of blood; another case was complicated by pelvic contraction. The results of treatment were the following: With expectant treatment—that is, tampons and rupture of the membranes (23 cases)—the maternal mortality was 0; 9 children were delivered dead, 4 of

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which were macerated and 2 premature; deducting these, the fetal mortality was only 17 per cent. After podalic version not followed by extraction (8 cases) the maternal mortality was also 0; that of the fetus, 83 per cent. Version with succeeding extraction (13 cases) caused the death of 3 mothers, while the fetal mortality was only 46 per cent. These results cause the author to condemn the latter method. It is of undeniable advantage to the child, but lessens the mother's chances of recovery.

Symphyseotomy.—Zweifel[6] reports that this operation has been performed 31 times at the Universitäts-Frauenklinik of Leipzig. All the mothers have recovered and are able to walk naturally and accomplish their usual work; 29 children were carried to term and sent from the hospital alive. He holds that if others have found their patients able to walk only with difficulty and pain, it is because they have employed the operation in cases with too great contraction, producing rupture of the sacro-iliac synchondroses. Symphyseotomy should not be performed when the true conjugate is less than 65 millimetres. The operation is not secondary to Cesarean section from the standpoint of convalescence, as some of the author's patients were up on the seventeenth day and nearly all within four weeks. Its mortality is less than that of the latter operation. The severe hemorrhage which sometimes follows the passage of the head can be checked by rapidly approximating the pubic bones, packing gauze in front of and behind the symphysis, and applying counter-pressure through the vagina. Zweifel again advises allowing the expulsion of the child to occur naturally whenever possible, in order to avoid laceration of the vagina. He believes that the mortality from symphyseotomy is due chiefly to infection of the wound, and so considers aseptic drainage of the oozing surfaces most important. For this reason he favors packing the wound with iodoform gauze and applying a tight abdominal and a T bandage. The gauze remains in place eight or ten days and is then removed gradually. When this has been done the two silver sutures, which with two absorbable sutures are used to unite the pubic bones, are taken out, and the wound heals by granulation.

Küstner[6] considers symphyseotomy as superior to Cesarean section, but believes that its employment should be confined to a relatively small number of skilled operators.

Bitner.[21] The woman was a IIIpara, 28 years old, who came with a history of two craniotomies. Conjugata vera 7 centimetres. Woman had been in labor twenty-eight hours. Membranes ruptured six hours prior to the arrival of the physician. Os fully dilated, head movable. Symphyseotomy was performed under the most unfavorable surroundings, with only the assistance of ignorant peasants. After dividing the symphysis the joint separated 1½ centimetres; the wound was stuffed with iodoform gauze. Within the next two hours the head reached the pelvic floor, whereupon the bone ends separated 5 centimetres. In spite of strong pains the progress of

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labor became arrested, which the author believes was due to the absence of a fixed point upon which the head could rotate. After placing a finger behind the ligamentum arcuatum the head was born with two pains. The subsequent healing of the wound continued perfectly normal. The author condemns the application of the forceps after symphyseotomy, because it frequently causes lacerations of the soft parts.

Jordan[23] reports 4 symphyseotomies performed for slight pelvic contractions or excessive size of the child. Operation thirty-four to fifty-six hours after beginning of labor, preceded by unsuccessful attempts with forceps. In 3 cases the bone ends were sutured; the author remarks that this is difficult. Delivery by forceps after the operation; in 2 cases high forceps. In the first case suppuration of the wound; in the second case recovery uninterrupted; in the third case recovery was very slow, complicated by suppuration and great debility; while the fourth case died from septic endometritis. Average duration of after-treatment, sixty days.

Organotherapy in Osteomalacia.—The favorable results obtained in goitre and cretinism from the administration of thyroid extract led Letzko[24] and Schnitzler to administer ovarian substance in osteomalacia. Five cases thus treated are reported *in extenso*. The treatment, however, had absolutely no influence upon the course or progress of the disease. At times a slight improvement was noticeable; this, however, is not uncommon in this disease, and was probably not due to the treatment

Cerebral Embolism during Labor.—Shortly after rupture of the membranes, and while the os was not fully dilated, a IIpara became suddenly unconscious and fell to the floor. There was a slight hemorrhage. She had general convulsions, especially marked in the left extremities. After the convulsions had ceased it was noticed that she had left hemiplegia and paralysis of the facial nerve. A second attack soon followed, resulting in complete aphasia. Novelli[24] terminated labor by rapid extraction of the child. Except for a remaining weakness, the woman recovered entirely. The author believes the paralysis was due to cerebral embolism caused by the premature detachment of a part of the placenta.

Brow Presentations and their Treatment.—Rose[25] discussed this subject at a recent meeting of the Hamburg Medical Society, and reports a case of brow presentation in which the head was firmly fixed in the pelvis. The membranes had ruptured six hours before. There was danger from rupture of the uterus. An attempt to deliver with forceps failed. Rose then introduced a finger into the mouth, pulling down the chin and rotating the same entirely. After this delivery was completed with the forceps.

Puerperal Tetanus.—Since the discovery of the tetanus bacillus the micro-organism has been found present in only 3 cases of tetanus puerperalis. In a very interesting and instructive paper Rubeska[26] reports 6 new observations. Three women

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who contracted the disease were delivered after short intervals by the same physician. In 2 other cases the infection occurred in spite of the most careful asepsis and antisepsis. Injections of Tizzoni's antitoxin and hysterectomy proved without benefit. The disease made its appearance from the sixth to the nineteenth day postpartum. These 6 cases, like the 14 reported by other authors, all ended fatally; the only case so far recovered was observed by Irwing.

Porro Operation.—Schaeffer[17] describes a successful Porro operation performed under most unfavorable surroundings. There was a complete rupture of the uterus, with an escape of the child into the peritoneal cavity. The operation was performed twenty-seven hours after the rupture had occurred. The woman recovered.

Vomiting of Pregnancy.—W. S. Gordon[18] suggests the theory that the nausea and vomiting of pregnancy may be due to impoverishment of the maternal nervous system by the withdrawal of phosphorus for the growth of the uterus and its contents. To substantiate this belief he cites the facts that nausea is most intense in the morning, when the mother has been longest without food, and is relieved by the morning meal; that it is most severe in the first half of pregnancy, when fetal development is most rapid; and that there is a diminished elimination of phosphorus by the kidneys. The treatment indicated by this hypothesis includes careful attention to the digestive organs, persistent or forced feeding, and the administration of phosphorus in the form of hypophosphite of calcium and sodium, with bromides or other nerve sedatives.

Very Young Human Ovum.—The ovum was obtained by Peters[19] from a young suicide, and is believed to be the youngest ever reported or described. According to the statements of Leopold the age of the ovum would be two to three days. The uterine mucous membrane was divided into numerous fields, in one of which, on the posterior wall, the ovum was found. It appeared as a white, shining elevation about the size of a millet seed. The capsularis had not entirely surrounded the ovum, its pole extending uncovered into the lumen of the uterus. Toward this pole the decidua strives with its epithelium flattened and compressed. Upon this epithelium we find a newly formed layer consisting of the granulation tissue, blood elements, and strands of fibrin. The granulation tissue is composed largely of blood, which is believed to exert some nourishing functions until the capsularis has completed its enclosure of the ovum. Peters believes the syncytium to be of fetal origin, being formed by a proliferation of Langhans' layer. The maternal blood plays a more important part in the formation of the syncytium than is commonly supposed.

GYNECOLOGY AND ABDOMINAL SURGERY.

Appendicitis and Tubal Disease.—H. Delagénière[20] speaks of the occurrence of a chronic follicular appendicitis in connec-

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tion with septic tubal disease. He states that it is always due to extension from the diseased appendages by the formation of adhesions and subsequent abscess. The vermiform appendix must always be removed with the appendages. The existence of such a complication of tubal disease and the consequent necessity of operating by the vaginal route is indicated by the onset of gastro-intestinal symptoms after those of salpingitis. After opening the abdomen the appendix should be removed if even fine adhesions exist, if fluctuation is detected at any point, if the appendix contains foreign bodies which cannot be squeezed into the intestine, and if its peritoneal covering is congested.

Appendicitis in Relation to Disease of the Appendages and Pregnancy.—J. B. Deaver [10] states that the most important point in considering the relation of disease of the appendages, pregnancy, and appendicitis is the necessity for an early diagnosis, because the good results of an operation for appendicitis depend upon the time of operation. The danger increases in direct ratio with the progress of an attack. In women who are liable to become pregnant and who have had an attack or attacks of appendicitis, the appendix should be taken out in order that the dangerous complication of pregnancy and appendicitis may be avoided. This is particularly true if an attack of appendicitis supervenes upon pregnancy. The latter condition does not contraindicate operation under the circumstances, but rather, on the other hand, makes operation more imperative. Another point is one based upon a rich personal experience covering both operative and non operative cases. It is that the number of patients with appendicitis who become perfectly well, patients who do not suffer during the interval between attacks and who are not subject to the certainty of future attacks, are so extremely rare that the question of curative treatment resolves itself into the time of operation.

To obtain an insight into the causes producing inflammations of the appendix, Beaussenat [10] made a large number of experiments on rabbits. These experiments he arranged in a number of groups. He came to the following conclusions: Appendicitis is nearly always the result of an infection. This infection may proceed either through the blood vessels or the lymph channels. The most common modus, however, is a descending infection of intestinal origin. A pathogenic bacterium of appendicitis does not exist. The bacterium coli is most commonly found. Before these pathogenic or non-pathogenic bacteria obtain any degree of virulence the normal vitality of the mucous membrane must be lowered or its phagocytic power impaired. The characteristic infectious folliculitis characteristic of appendicitis spreads by the perifollicular lymph channels; thus an adenitis of the appendix is the constant rule. The causes predisposing to appendicitis form also the initial lesion; they favor infection by reducing the body resistance to disease. The predisposing cause is enterocolitis. Clinical observation led to suspect this, and practical experiments have proved it

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positively. Three experiments make it probable that a seed or hard concretion in the appendix is not the cause but the result of appendicitis.

Cystitis.—E. Garceau [11] states that a case of nodular cystitis may give rise to exactly the same train of symptoms as a single solitary ulcer or as a chronic interstitial cystitis, yet the treatment is radically different in each. This being the case, it seems justifiable to subject to cystoscopic examination women who have suffered from cystitis for an appreciable length of time, reserving for the classical treatment those cases of acute cystitis which are so readily cured by simple means. The examination in the knee-chest posture may be made practically painless if one or two crystals of pure cocaine are inserted in the meatus urinarius and left there a few moments before the cystoscope is introduced. Several illustrative cases are reported.

Displacements of the Uterus.—C. L. Hall [12] upholds Alexander's operation for cases of non-adherent uterus and healthy appendages. Ventrofixation should be limited to cases of adhesion associated with diseased appendages requiring removal. In this the sutures should pass about one or one and a half inches above the pubic symphysis and through the anterior wall of the uterus.

In a case of retroversion of the uterus G. W. Kaan [13] passed a suture of No. 5 braided silk through the base of each round ligament and the peritoneum and fascia of the corresponding side of the abdominal incision. A year later the uterus was found again retroverted; the silk sutures had disappeared and were replaced by cords of smooth muscle fibre, connective tissue, and vessels. The left cord, about half a centimetre in diameter, was ten centimetres long; the right cord, not quite so thick, was eighteen centimetres long. The uterus was then fastened forward by a single suture of No. 10 braided silk passed through its fundus and the fascia and peritoneum of the incision.

Sippel [14] reports sixteen ventrofixations after Czerny-Leopold method, one case of which became subsequently pregnant. The delivery was perfectly normal, and some months later the uterus was still found in its normal position. Sippel believes it to be wrong to condemn this operation on account of some obstetrical disturbances, there being a very large number of normal deliveries on record.

J. C. Webb [15] describes the technique employed by Dührssen in vaginal fixation and that of Mackenrodt. The advantages which he claims for Mackenrodt's operation are: 1. That the longitudinal incision through the anterior vaginal wall does away with any risk of cutting the ureters or large vessels, and that, where the vagina is large and lax, this longitudinal incision can be converted into a rhomboidal one, and thus an anterior colporrhaphy can be done at the same time as the vaginal fixation, thus strengthening the point of attachment of the uterus and curing any prolapse that may be present. 2. That by using absorbent catgut instead of silkworm gut, the uterus

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is eventually maintained in place purely by adhesions, which, in the event of pregnancy, can stretch and allow the uterus to rise out of the pelvic cavity in a normal manner. 3. That by fixing the body and not the fundus only, the final position of the organ is not one of such extreme anteflexion as in the Dührssen operation.

Martin [35] considers it a step in the right direction to separate the symptoms preceded by diseased adnexa from those produced by the retroflexion. He rarely operates movable uncomplicated retroflexions. Amongst 454 colpotomies there were only 60 operations for retroflexion. Pelveo-peritonitis forms the most frequent indication for colpotomy.

Elischer [36] agrees with Theilhaber that the neurasthenic symptoms have their origin in a diseased condition of the central nervous system and are not caused by the retroflexion. Recurrence after Alexander's operation is frequent.

Mackenrodt [37] believes that every correct vaginofixation is in reality a vesicofixation, and therefore vesicofixation is the only proper operation. Like Dührssen, he does not operate as frequently as in former years. He has seen one pregnancy after vaginal shortening of the round ligaments.

Leopold [38] corrects an erroneous statement of Olshausen and draws attention to the fact that in his operation of ventrofixation the whole anterior wall of the uterus is not fixed; he places two sutures in the uterus, of which the upper lies a half-centimetre below the insertion of the tubes: Several cases of subsequent pregnancy and labor, without any complication, have come under his observation. He also reports two cases of difficult labor, one following vaginofixation, the other after a faulty ventrofixation.

Fritsch. [39] The object of treatment is to relieve the symptoms and enable the woman to follow her vocation. In a number of cases this can be obtained through the pessary. while in others operative treatment becomes necessary. Vaginofixation should only be performed after the menopause. Ventrofixation gives good results, but there may be some subsequent pain in the abdominal muscles. In some cases vaginal hysterectomy becomes necessary. He considers Alexander's operation the best, if continuous experience shows its results to be permanent.

V. Rosthorn [40] saw among 6,722 gynecological cases retroflexion in 16.2 per cent; complications with inflammation of adnexa occurred in 7 per cent; and in many cases there was, besides the retroflexion, general enteroptosis. He considers the rectifying of position more than suggestive therapy.

Chrobak [41] says that the retroflexed position retards conception. The rectal symptoms are often the result of catarrh, which should receive appropriate treatment. He observed both success and failures after operations. the latter mostly following vaginofixation. Alexander's operation is the coming operation, but Olshausen's ventrofixation has also many advantages.

Schatz [42] considers vesicofixation a mistake, and advises

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Alexander's operation if operation becomes necessary. Proper care in the puerperium is the best prophylaxis.

Pfannenstiel [36] is also an advocate of the vaginal shortening of the round ligaments and of Alexander's operation.

J. I. Parsons [37] suggests the treatment of prolapse by the injection of a solution of quinine into the areolar tissue around the cervix, thus producing a limited pelvic cellulitis and fixing the uterus in its proper position. In a case so treated this result was obtained but too recently to decide whether permanent adhesions can be formed.

Chrzanowski [38] reports a case of inversion in a woman 55 years old, who for some time complained of heaviness in the abdomen. A few days prior to admittance to the hospital she noticed a tumor projecting from the vulva, about the size of a fist, and bleeding surface. This tumor was a fibroid connected by a pedicle two centimetres long to the completely inverted uterus. Chrzanowski amputated the fibroid and three days later extirpated the uterus also, because its mucous membrane in part had become gangrenous. Recovery.

Relations between Gynecology and Diseases of the Rectum.—A few of these relations are pointed out by J. B. Bacon.[39] An infected hemorrhoid or fissure of the anterior anal surface often causes thrombosis of the superior hemorrhoidal veins, extending along the vein outside of the rectum just beneath the peritoneum and there setting up a posterior uterine cellulitis. Such infection is sometimes caused by a gonorrheal vaginal discharge. Pelvic exudates or tumors often press directly upon these veins and obstruct the blood current more or less, thus causing internal hemorrhoids. Gonorrhea of the vulvo-vaginal glands often produces a periglandular exudate which compresses the sensory branches of the pudic nerve. Pain is reflected back over the pudic nerve to the branches that supply the external sphincter, and, causing an irritable sphincter with resulting spasm of that muscle, furnishes one of the causes of constipation and congested hemorrhoids. Any source of irritation, such as a rectal ulcer, blind internal fistula, chronic constipation with resulting catarrh, ulceration in the sigmoid flexure, may, by reflex irritation, cause anemia or congestion of the ovaries, tubes, or uterus, with the accompanying pain and symptoms of those conditions, including relaxation of the ligaments and displacements of the uterus. A misplaced sigmoid flexure may obscure the diagnosis and prognosis of a pelvic condition where pain is a prominent symptom, thus interfering with thorough examination of the patient.

Pelvic Disease.—H. P. Newman [40] states that pelvic disease of an aggravated type is often present without noticeable local symptoms, but may cause reflex symptoms, beginning as functional disturbances which lead to obstinate and severe affections of distant organs. In all cases of chronic invalidism in women pelvic disease should be excluded.

Conservative Treatment of Diseases of the Fallopian Tubes.—T. More Madden [41] favors the treatment of pyosalpinx

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and hydrosalpinx by aspiration through the vagina when this is possible. D. Berry Hart[9] is opposed to this procedure.

Oxychloride of Silver in Uterine and Tubal Diseases.—Boisseau du Rocher[10] again advocates the treatment of uterine hemorrhage, metritis, and some cases of salpingitis with oxychloride of silver formed by electrolysis. A large pyosalpinx, or one in which the tube has become tortuous, demands an operation; but if in normal position and not of large size, even an old case may be made to empty itself by the natural route, while in recent cases this result is held to be almost certain. If the tube begins to expel its contents, complete recovery regularly takes place within two menstrual periods, the treatment being employed twice a week.

Gauze Packing of the Pelvis.—T. J. Alloway[11] favors gauze packing of the pelvis for the arrest of otherwise uncontrollable vomiting.

Septic Pelvic Disease.—F. Henrotin[12] says that as soon as the diagnosis of septic pelvic disease with local manifestations outside of the uterus is established, he advises and practises immediate incision posterior to the vaginal fornix and thorough drainage of the affected area. When the indications point plainly to pus and long drainage, the cautery should be used, as the edges, being seared, will not show a tendency to contract so quickly.

Vesico-vaginal Fistula.—H. O. Marcy[13] believes that the majority of failures to cure vesico-vaginal fistulas are due to contraction of the circular fibres of the vaginal mucous membrane. It is safe and not very difficult, having split the edges of a refreshed vesico-vaginal fistula, to separate widely the bladder from the vagina. When this has been effected the opening in the bladder wall is refreshed and closed by a double line of continuous sutures with a shoemaker's stitch, carefully avoiding penetration of the mucous membrane, using for suture material a fine tendon. The free dissection makes the union of the bladder wall comparatively easy, and even when a large portion of the vaginal vault has been lost there is little difficulty in effecting an easy, uniform closure without tension of the bladder wall. The method of closing the vaginal wall is of secondary importance. The writer employs a lacing stitch with a deeply buried tendon suture.

Complicated Urinary Fistulas.—Freund[14] described two cases at the recent Congress of German Physicians. The first case concerns a girl 23 years old, who when in her ninth year fell from a tree, and, landing upon a fence, sustained a severe laceration in the genital region. An examination showed a fistulous track commencing above the anterior columna rugarum and extending under the mucous membrane in a posterior direction, again appearing toward the left of the posterior fornix. From the latter point the track described a curve, and finally ended in the bladder. An operation resulted in a complete cure. A woman 29 years old contracted a urinary fistula during her second confinement, which was instrumental. The

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fistula opens into the anterior fornix, from where a branch extends around the vagina, encircling rectum, to appear again on the anterior surface of the sacrum, where it is connected with a large abscess cavity. The operation, which is rather complicated, proved entirely successful. These cases are interesting on account of a peculiar displacement of organs resulting in curved fistulous tracks.

Tubercular Peritonitis.—J. W. Felty[40] reports four cases of tubercular peritonitis in which he employed hypodermatic and internal administration of nuclein, with one death, one apparent cure, and two instances of at least temporary improvement.

Intrapelvic Tuberculosis.—J. F. W. Ross[41] considers it improbable that intrapelvic tuberculosis is the result of the introduction of tubercle bacilli into the vagina, as, were this the case, it would seem that the wives of men with tubercular testes would often be infected. It is most common in virgins. Tuberculosis of the tubes, ovaries, and pelvic peritoneum may be mistaken for three conditions—namely, salpingitis of some other origin, hysterical neuralgia, and pelvic peritonitis of the subacute variety due to the presence of ovarian or uterine growths. The writer believes that it is wise to remove the tubes and ovaries as soon as they are found to be affected with the disease, or as soon as the peritoneum in the neighborhood is found affected, even though the ovaries and tubes themselves remain to the naked eye apparently healthy.

Primary Tuberculosis of the Vulva and Elephantiasis of the Clitoris.—This exceedingly rare disease is described by Karajan,[41] who reports the case of a little girl 2 years old. She had a tumor of the clitoris measuring two centimetres, also an eczema of the vulva. This condition existed for about one year. The tumor was removed. Its microscopical examination showed a marked proliferation of connective-tissue giant cells in different stages of development and containing tubercle bacilli. After ten months the tumor reappeared and ulcers of the vestibule and vagina also formed. Tuberculosis in other parts of the body was not found. The author considers this to be a primary tuberculosis of the genitals. The connective-tissue proliferation is also considered primary and not due to a secondary tubercular infection of a fibroma.

Senecio in Disorders of Menstruation.—From a number of experiments in cases of disordered menstruation, W. E. Fothergill[42] concludes that senecio is not an ecbolic. He believes that the drug will not provoke menstruation in cases of marked anemia or advanced phthisis, but will do so in cases of functional amenorrhea. He states that it will not increase the quantity of the discharge, and that in dysmenorrhea it gives little relief from pain.

Floating Kidney.—Keller.[43] One of the important causes for floating kidney is a reduced intra-abdominal pressure; through this the kidney's own weight makes itself felt, especially if the action of the diaphragm is over-excessive. Imme-

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diately after delivery we observe the greatest and most sudden reduction on intra-abdominal pressure; thus at that time the conditions for the production of floating kidney are most favorable. A proper hygiene of the puerperium is the best prophylaxis. This consists in a regular and thorough emptying of bladder and intestines and the application of an abdominal binder. The conditions after the removal of large tumors are similar. Keller also notes amongst its causes rapid emaciation, long-extended lactation, and nervous dyspepsia. Other disorders of the genital apparatus are probably without influence, but the causes producing displacements or descent of the uterus and its adnexa are also productive of floating kidney. The clinical picture of a floating kidney presents many variations. The symptoms may be trifling or even absent in well-developed cases, while in others a slight mobility on the organ causes unbearable suffering. This shows itself especially in disorders of the digestive tract and disturbances of the urinary apparatus. During menstruation they are apt to increase in severity. The diagnosis of a well-developed floating kidney is easy. In slight cases it must be made by exclusion. In the treatment of this condition we must, in the first place, diminish the mobility of the kidney. This can in many cases be accomplished through a well-fitting abdominal bandage. Cold bath, faradization, and massage are valuable adjuncts. Should these methods produce no beneficial result, the operation of nephrorrhaphy comes into question. Other operations, like nephrectomy, should not be considered, because a floating kidney never endangers the patient's life. In cases, however, in which nephrorrhaphy has been repeatedly performed without success, nephrectomy may become the ultimum refugium.

Sonnenburg." The differential diagnosis of inflammations and tumors in the ileo-cecal region from diseases of the adnexa on the right side. To differentiate tumors from typhlitis or perityphlitis, the distension of the intestines with air is advised and highly praised. More difficult is the differentiation between these cases and diseases of gall bladder or liver. In the latter cases the general condition, the extent of the exudation. and the area of dulness are the most important diagnostic points. Diseases of the genitals are often mistaken for perityphlitis; a correct history is apt to aid in making the diagnosis.

Splenectomy.—Jounesco" reports 8 cases of splenectomy which he performed during the last year. In 7 cases the operation was performed for malarial hypertrophy; a hydatid cyst formed the indication in the remaining one. One of these cases died from peritonitis due to a reopening of the wound. Jounesco advises splenectomy for enlargement of the spleen in malaria if internal medication is not successful. A certain degree of cachexia is not a contraindication; in 2 cases cachexia was quite pronounced. The size of the spleen is also no objection, but extensive adhesions, marked ascites. leucocytosis, and advanced age contraindicate the operation. The position of the spleen is of prognostic importance. The prognosis is better if the organ

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is displaced, its removal being more easy. As regular sequences of splenectomy Jounesco observed an increase of both the red and the white blood corpuscles.

Uterine Fibroids.—H. A. Kelly[4] advocates abdominal myomectomy for all cases of large and even multiple myomata if the patient is under 37 years of age and in condition to stand an operation lasting from thirty to fifty minutes. The largest and most accessible growths are first removed, thus bringing others into better position for enucleation. Several may at times be removed through one incision in the uterine wall. Any number of incisions required may be made, avoiding, as a rule, the uterine cavity, and each is closed at once as in a Cesarean section, paying particular attention to the angles which are most apt to bleed. Hemorrhage may be arrested temporarily by clamps, and permanently by numerous sutures extending deeply into the uterus, or by several rows of sutures if necessary. If the tumor is large it may be enucleated step by step, checking hemorrhage meanwhile. Before closing the abdomen without drainage the table must be dropped level and each wound carefully inspected. Sepsis is prevented by avoiding handling of the tissues, traction being made with forceps, dissection done with a blunt instrument, the lips of the incision held apart with gauze pads if necessary, and rubber gloves worn by the assistants. Hemorrhage during enucleation is checked by rapid work, pressure upon the base of the tumor, or constriction of the cervix by the fingers or strip of gauze. Kelly has in this way removed as many as thirty myomata without entering the mucous cavity of the uterus.

F. H. Martin[5] describes the technique of vaginal ligation of a portion of the base of the broad ligament, including the uterine arteries and their branches, and states his belief that it may be considered a minor operation from the standpoint of mortality. The operation has for its objects (*a*) the reduction of the tumor by starvation; (*b*) the cure of uterine hemorrhage by depriving the uterus of two-thirds of its blood supply. It does not remove the essential organs of generation, and, therefore, does not make child-bearing impossible. The operation is particularly applicable in hemorrhagic cases where the depletion is such that radical measures are positively prohibited. It may be resorted to in cases of fibroids of the uterus in which complications are such that the ordinary radical procedures become too dangerous or are practically impossible. It is especially indicated in all small bleeding fibroids of interstitial character which are discovered because of their rapid growth and increased hemorrhage as the menopause is approaching. The operation may be employed as a substitute in all cases of growing and bleeding fibroids in which patients absolutely object to radical procedures. The operation may become a routine practice of great value in all bleeding or growing fibroids in which the tumors have not become a burden because of size, and in which they are sufficiently interstitial to receive their principal blood supply through the uterine arteries. In fourteen cases of ex-

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cessively hemorrhagic fibroids in which two or more years have elapsed since the operation, there has been but one relapse of hemorrhage and one of pain. The operation is not applicable in cases of pediculated submucous or subperitoneal fibroids.

Uterine Fibroids.—In inoperable cases of uterine fibroids W. Anderson [47] advises the continued use of ergot, hydrastis, and strychnine, with tonics, laxatives, and sedatives as required. For hemorrhage he employs hot astringent vaginal douches, curettage and application of astringents or styptics, and hypodermatic injections of ergot, strychnine, and hyoscyamine. In operative cases, when a tumor cannot be removed per vaginam, by enucleation, or by abdominal myomectomy without entering the uterine cavity, he performs a vaginal or an abdominal hysterectomy, with a decided preference for the abdominal method.

Ovariotomy.—In reporting fifty of his successful ovariotomies, W. J. Gow [48] lays considerable stress upon a short abdominal incision, three inches usually sufficing, and upon ligature of the pedicle in three or more sections, except when it is unusually narrow. This practically eliminates the danger of secondary hemorrhage from slipping of the ligature. The writer seldom employs irrigation in cleaning the peritoneal cavity.

Switalski [14] describes an interesting case of torsion of the pedicle in an ovarian cyst. The remarkable feature of the case was the torsion of the right half of the uterus, which was of bluish tint, softened, and had undergone changes necessitating its supravaginal amputation.

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DISEASES OF CHILDREN.

Bronchitis, Pneumonia, and Suppurative Arthritis.—Kossel [1] cites the case of a 5-months-old baby who had an attack

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of bronchitis followed by pneumonia of prolonged duration and flatness in the left axilla. A swelling of the left shoulder developed, and was found to be due to a suppurative arthritis, the head of the humerus being denuded. Incision and drainage resulted in cure. Pneumococci were demonstrated in the pus from the shoulder joint.

Capacity of the Stomach in Childhood.—Pfaundler[1] measured the stomachs of 7 children at autopsy, comparing them with the body length. He found that the stomachs of breast-fed children are smaller than those artificially fed; that the capacity of the healthy stomach is less than that of functionally or anatomically diseased stomachs; that the true capacity is in inverse ratio to the elasticity and stretching power of the walls; and that a small pylorus is accompanied by greater stomach capacity, while with a wide pylorus there is less capacity. Studies made upon the stomachs of infants during life brought out the fact that gastro-paresis and overstretching of the gastric wall are especially common during the first few weeks of life and at the end of the first year—that is, at the time when food is first taken into the stomach, and when the restricted is changed for a more liberal diet.

Cholera Infantum (so-called), Mortality of Nurslings from, during the Summer Months.—Koenigsberger[2] found that in 148 fatal cases a previous gastro-enteric disturbance was absent only five times. He concludes that the high rate of mortality is not due to the disease occurring only in summer, but because it attacks almost exclusively artificially-fed infants with chronic gastro-intestinal disease. A reduction of the death rate can only be accomplished by preventing digestive disorders by means of good feeding.

Cold Water in the Treatment of Children's Diseases.—J. Comby[4] describes the advantages and disadvantages of this method of treatment. The physiological action of cold water is complex. Its first effect is refrigerant, so that it is an antithermic agent. Its second effect is to interfere with cutaneous circulation by causing contraction and then dilatation of the small blood vessels; this vaso-dilatation calls the blood from the internal organs, so that cold applications may be said to have a revulsive action. This is manifested in the heart by less frequent and stronger beats, in the respiratory apparatus by slower and easier breathing. Cold water is diuretic. It also acts upon the terminal nerves in the skin, and secondarily upon the central nervous system, upon which it is a tonic in its effect. It is also a sedative. Cold water is indicated wherever there is hyperpyrexia, with or without delirium, restlessness, and ataxo-adynamia, in the eruptive fevers, typhoid, diphtheria, or any form of septicemia. The author has had successful results from the use of cold baths in scarlatina, measles, la grippe, diphtheria, infectious diarrhea, and erysipelas. Pneumonias and broncho-pneumonias in even the youngest children may be treated with cold water. In the capillary form of broncho-pneumonia the cold bath is not well tolerated and

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should be replaced by wet sheets and towels. It is also badly borne in tuberculous meningitis, miliary tuberculosis, and in diseases of the heart. In cases where the cold bath causes too great a shock, other methods of applying the cold-water treatment are often well tolerated. An ice bag upon the head-thorax, abdomen, or precordial region is well tolerated, because it acts upon a limited surface and does not chill the whole surface of the skin. It is useful in pneumonia, pulmonary congestion, broncho-pneumonia, pericarditis, myocarditis, peritonitis, meningitis, etc.

The wet sheet is excellent, being sufficiently refrigerant and sedative in convulsive conditions with or without fever. Comby has found it of use in chorea, hysterical convulsions or trembling, cerebral irritation with extreme excitement, and in the neuroses of children in general. Applied three times a day for an hour each time, it has caused total disappearance of choreic movements in some patients and has secured rest and sleep for them. In acute broncho-pulmonary affections in young children, a cold compress upon the thorax is well tolerated and often brings relief, although it does not reduce temperature as does the cold bath. When frequently renewed it causes energetic contractions of the respiratory muscles, coughing, facilitates the deobstruction of the bronchial tubes, reddens the skin, and keeps the child in a moist atmosphere favorable to respiration.

Cold-water Treatment in Pneumonia.—Chambard-Hénon[8] reports a case of grave pneumonia in a child of 3½ years. The following table will give an idea of the effect of the treatment:

	Temperature.	Half hour later.
First bath, July 15, 7 P.M.	39.9° C. (103.8° F.)	39 8° C. (103.6° F.)
Second bath " 10 "	39 6° C. (103 3° F.)	38.1° C. (102 4° F.)
Third bath, July 16, 1 A.M.	39 4° C. (102.9° F.)	38.4° C. (101.1° F.)
Fourth bath, " 4 "	39.6° C. (103 3° F.)	38.4° C. (101.2° F.)
Fifth bath, " 7 "	39.1° C. (102.4° F.)	37.9° C. (100.2° F.)
Sixth bath, " 11 "	39.4° C. (102.9° F.)	38.5° C. (101.3° F.)

The respirations became normal, the child was smiling and happy. July 17 the temperature was 37.7° C. (99.8° F.) at 9 A.M., 37.7° C. (99.8° F.) at 2 P.M., 37.8° C. (100°) at 8 P.M. The success was particularly rapid in this case.

Congenital Malformation of the Limbs.—Weissenberg[9] reports the case of a baby 4 months old, in whom he attributes the twisting of all the extremities to the almost total absence of liquor amnii, noted at the time of the birth. There were several atrophic areas on the skin and a large scar on the right shoulder. A photograph of the child is given.

Constipation, Habitual, in Children and Adults.—J. M. Perkins[1] considers that there are only four causes of this trouble where no organic affection exists, and these are: 1. An insufficient amount of water ingested to liquefy the fecal matter and supply the blood with its necessary portion. 2. Too great an amount of uric acid in the system. 3. A tense sphinc-

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ter ani. 4. A neglect to attend to the calls of Nature. He has noticed that patients whose system is overloaded with uric acid are usually constipated, and that when water is taken to wash out the system, in conjunction with uric-acid solvents, the stools become semi-solid. Perkins considers that neglect to go to stool at the proper time causes rigidity of the sphincter; this occurs in infants as well as in adults, the mothers or nurses neglecting to teach the children to evacuate the bowels at a given time. It is easy to teach the youngest child regularity in voiding urine or evacuating the bowels, by removing the diaper and holding the babe near a warm stove, letting the heat come in contact with the exposed nates. The author's method of treatment of habitual constipation is the following: He has the patient cleanse mouth and throat on rising in the morning, then drink a pint of cold water fresh from cistern, well, or hydrant, and the same amount two hours after each of the three meals. The sphincter ani is to be dilated with rectal speculum or fingers once a week, or in stubborn cases twice, for two or three weeks. Five to ten grains of sodium bicarbonate are to be given two hours after meals. Nursing mothers are to give their infants water frequently, and are themselves to drink as above prescribed. If they have an excess of uric acid they are to take larger doses of sodium bicarbonate. The infant's sphincter is to be dilated. The author claims to have had brilliant success in curing cases of habitual constipation by this method.

Diphtheria.—William Ewart[9] reports favorable results in obstruction of the trachea by diphtherial membrane from the introduction of creosoted oil through the tracheotomy tube. The satisfactory results witnessed suggest that the usefulness of the treatment may not be limited to cases of urgent danger, and perhaps not to cases in which tracheotomy has been performed. The application of the creosoted oil might safely be tried in diphtheria of the fauces, and its action could then be watched with relative facility. Dropping the oil into the trachea is clearly better than a sudden injection of a quantity of it. The proper strength of the creosoted oil is 1 to 20.

Belin[9] gives the results of serum treatment in 529 cases during the year 1896, the death rate being 10.6 per cent, as against 33.9 per cent among 121 cases in 1889. While no severe disturbances were noted after giving the serum injections, it is undoubtedly proven that post-diphtheritic paralysis and relapses are of more frequent occurrence than before this mode of treatment came into use. The kidneys are affected in many cases, but not severely; and the mortality rate is diminished, but not to the extent which was at first expected.

C. H. H. Sprouck,[10] having made a series of experiments upon the action of the antidiphtheritic serum upon pre-existing diphtheritic albuminuria, concludes: 1. That a subcutaneous injection of 10 cubic centimetres (2½ fluiddrachms) of antidiphtheritic serum or non-immunized horse serum (no antiseptic added) in a healthy rabbit weighing from 2 to 3 kilos (about

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4 to 6 pounds) causes a very slight albuminuria, which persists for twenty-four hours only, and is merely the result of the passage of a small amount of the albumin of the serum through the kidney. 2. This passage of albumin is a little more pronounced and lasts a little longer if the rabbit be suffering or just recovering from diphtheritic albuminuria. 3. The antidiphtheritic serum has no noxious influence upon the pre-existent diphtheritic albuminuria of the rabbit, even when injected in strong doses. 4. On the other hand, the serum has a favorable effect if injected at the onset or within twenty-four or forty-eight hours after the appearance of the albuminuria. 5. The serum is powerless to check promptly a diphtheritic albuminuria, but it may modify it by diminishing its intensity and duration.

Erythema Nodosum.—Görlitz[11] reports two cases with cardiac complications and reviews the literature. He has seen 30 cases, 16 of which were under 10 years of age, the youngest being 4 years old. In children the eruption is more prone to general distribution than in adults. Of these cases 10 per cent were complicated by endocarditis resulting in valvular lesions. From the character of the onset (sudden with a chill), the clinical course, the complications, and the fact that it has occurred in epidemics, it seems rational to classify the disease as an infectious one.

Examination of Fat and Fat Sclerema in Nurslings.—Knöpfelmacher[9] has made exhaustive chemical studies of the fat of six normal infants ranging from birth to 17 months of age, and also of two cases of sclerema aged respectively 21 and 23 days. His results warrant the following conclusions: The fat of newly-born infants contains 43.3 per cent of fatty acids, which increase steadily until at twelve months the adult amount of 65 per cent is reached. In the case of emaciated infants the per cent of fatty acids is less than that of well-nourished infants, and it is higher ordinarily in the fat taken from the sole of the foot than in that from the breast or back. The causes of sclerema are a loss of fluid, low temperature, and high coagulation point of infants' fat. After the age of 6 months the percentage of fatty acids is so great that the possibility of the occurrence of sclerema is excluded; only under 2 months is it common. The composition of the fat in two sclerema cases was not abnormal.

Fetal Heart Murmur.—J. N. Hall[10] reports a case of a fetal heart murmur heard through the mother's abdomen by stethoscopic examination during labor. The infant was at first very cyanotic, but half an hour after birth respiration was well established, and the area of cardiac dulness, which had been unusually large, became normal. The heart murmur continued, but grew progressively weaker, until in ten days it had disappeared. At 4 months the child is apparently entirely normal. There was perhaps a structural defect or endocarditis, limited to the ductus arteriosus Botalli and causing roughening or stenosis of its lumen, which caused a systolic

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murmur that disappeared with the physiological closure of the duct on the tenth day.

Foreign Body in the Esophagus.—G. Variot[13] reports a case in which a bit of metal was fixed in a child's esophagus for more than a year, causing great difficulty in deglutition. Finally, while the child was vomiting after attempting to swallow a piece of bread, the foreign body was spontaneously ejected. The fact that milk was easily swallowed misled all the physicians who had seen the case. Variot thinks that in such cases it would be advisable to make a radiographic examination.

Gastro-enteritis, Respiratory Disturbances in.—Czerny[14] calls attention to the frequent occurrence of dyspnea during gastro-intestinal diseases, and its lack of proportion to the few physical signs in the lungs and the very mild lesion found at autopsy. It is really of nervous origin (acid poisoning), and always tends to make the prognosis grave.

Glaucoma.—Rochon-Duvignaud[15] discusses infantile glaucoma and its treatment. The disease, as is well known, consists of an increase in the intraocular tension, which makes the eye hard to the touch, causes disorders of vision, and in acute cases produces unbearable pain. The cornea becomes tense, the pupil dilates, the iris approaches the cornea, and the latter becomes surrounded by a network of episcleral blood vessels. As the sclerotic of the adult is inextensible, the eye does not become increased in size. In children, however, the sclerotic is somewhat extensible and the eye gradually increases in size. This is called *hydrophthalmia,* or in extreme cases *buphthalmia.* There is induration, but less, of course, than in the case of adults. There are a few cases of apparently primary hydrophthalmia. and some are secondary to irido-cyclitis, perforation of the cornea, etc. The etiology is obscure. Some cases are hereditary, but in some no such influence exists. Syphilis is rarely a cause. The general condition of the patients is usually defective; there may be emaciation, pallor, a nervous taint, and sometimes epilepsy. Hydrophthalmia is characterized by three symptoms—increased tension, megalocornea. and excavation of the pupil. These are always present, and will serve to distinguish the affection from other diseases of the eye. Iridectomy is of benefit at the onset only of the trouble. Sclerotomy or repeated punctures of the sclero-corneal *limbe* may be resorted to at a later stage. Myotics cannot be counted upon in the case of children. Operation should be resorted to, always under an anesthetic.

Hemorrhage, Fatal, from an Untied Umbilical Cord.—Dittrich[16] reports such a case where the birth took place while the mother was on the way to the hospital, the cord stump being loosely tied, and the child dead when the hospital was reached. At the autopsy all the organs showed a marked degree of anemia. As no vascular changes have been noted in similar cases, the etiology for the bleeding must be looked for in the state of the blood pressure and the respiratory influence on the circulation.

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Heredity and Degeneration.—Floyd M. Crandall,[15] in an interesting article upon this subject, states that it has been his endeavor to call attention to the following facts: 1. Heredity and degeneration are two totally different phenomena. One is an inheritance of tendencies or qualities possessed by the ancestor; the other is a loss of these qualities. The one produces a condition similar to that of the progenitor; the other, a condition dissimilar. The one is always transmitted; the other may be transmitted or acquired. 2. There is a condition of gradual, progressive degeneration requiring several generations for its complete course, which is entirely different from heredity. 3. There are elements of good heredity which are as potent as those of bad heredity. Health, vigor, and a sound constitution are transmitted with as much certainty as are rheumatism, gout, and tuberculosis. 4. A tendency to certain diseases shown by one parent may be partially or wholly neutralized by a sound constitution in the other parent. 5. A tendency to a given disease possessed by both parents may sometimes be seen in intensified form in the offspring. 6. A powerful tendency on the part of Nature to preserve the species and to revert to the common type is a constant and potent factor in preventing the repetition of extremes, either good or bad, and maintaining the type undegenerated.

Hydatid Cysts of the Liver.—William Fitch Cheney[16] reports a case in a boy 7 years old, in which operation was followed by recovery. The affection in children is very rare.

Hydrocephalus.—M. Moncorvo[17] has given a full and interesting article upon the subject of the pathogenesis of congenital hydrocephalus, illustrated by many reports of cases, which he sums up as follows: 1. The affection is more frequent than has hitherto been supposed. 2. Cases of this nature are always due to the direct or the indirect influence of syphilis. 3. In the direct cases the intracranial effusion is due to inflammation of the ventricular ependyma, and constitutes hereditary syphilitic hydrocephalus, properly so called. In the indirect it follows atrophy of the cerebrum, thus causing parasyphilitic hydrocephalus. 4. The clinical aspect of this affection does not differ from that of other varieties of hydrocephalus. 5. The course is variable; the disease may last a few days only or go on for several years. 6. The cases reported by the author and by Sandoz prove that the disease is by no means so surely and so promptly fatal as we have hitherto been led to believe.

Intermittent Fever in Children.—Herman B. Sheffield[18] thus sums up an excellent article upon this subject: 1. Intermittent fever in children is mostly of the quotidian type; the chill and sweating stage being often masked, it is not infrequently overlooked; the spleen is rarely enlarged if quinine is administered early. 2. Genuine intermittent fever always presents the malaria plasmodium in the blood; its absence is due either to a technical error on the part of the examiner or to the administration of drugs which are detrimental to it. 3. The existence of the varieties of the plasmodium described

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by some authors as peculiar to quotidian, quartan, tertian, etc., types of the fever, is still a subject of great controversy. 4. Infection of malaria is conveyed through the air as well as by water. The mosquito theory of infection seems to be a mere hypothesis. 5. Malarial disease is endemic in most of the larger cities of the North, especially New York; all doubts raised against it are not based upon scientific investigation. 6. Intermittent fever yields promptly to large doses of quinine, a point of considerable value in the diagnosis. Persistency of the attacks may be attributed either to the exhibition of quinine in too small quantities for too brief a period, or to its administration in the form of the mercantile, heavily coated pill, which is, as a rule, insoluble and hardly ever enters into the circulation.

Intussusception.—Charles P. B. Clubbe[19] presents the notes in 15 cases and concludes from them that rectal injections must not be given up, for in a certain number of cases the intussusception may be reduced by this means, even when used a considerable time after the onset of the symptoms. After apparently reducing the intussusception by injection, we must be careful not to lose sight of the child for a few days, even though the symptoms disappear and it passes a natural motion, for the invagination is very liable to recur. The author thinks that injections of warm oil should be given in all cases, after the child is under the anesthetic, even in cases of long standing, when we know that it is impossible to complete the reduction by this means, for it reduces the intussusception to a certain degree and thus lessens the shock of the coming operation by lessening the manipulation of the intestines.

Lumbar Puncture, Clinical Experiences with.—Stadelman[20] has practised lumbar puncture in cases of tuberculous meningitis, purulent meningitis, cerebral abscess, tumor, hemorrhage, hydrocephalus, etc., but has never seen any therapeutic value result from it. Its diagnostic value is great if the result of the examination of the fluid is positive. Negative results must be taken with great caution.

Makroglossia.—Gerhardi[21] reports the case of a 7½-months girl baby. with a good family history, in whom the enlargement of the tongue was so great as to interfere seriously with nutrition. In consequence the child's condition was so poor that a surgical operation was out of the question. From the hardness of the tongue it would appear that the process was a fibromyomatous growth rather than a lymphangiomatous one.

Mastoid, Ultimate Results of Operations on the.—In a discussion[8] upon this subject F. Bulla states that he has never seen an unfavorable result when the bone was opened before the occurrence of extensive caries and of intracranial complications. All such cases recover perfectly, even to the extent of regaining perfect, or almost perfect, hearing, and the cure is always permanent. When there is caries all the diseased bone should be removed. Although most of these cases recover, a certain proportion succumb to intracranial complications, and

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others get well only after prolonged suppuration from the middle ear, or from fistulous tracts leading to the deep-seated residual diseased bone, often with impairment or total loss of hearing in the affected ear. The worst and most tedious cases of this kind are those in which there is obviously a strumous diathesis. Albert H. Buck believes that a favorable result may be expected in chronic cases from a thorough removal of all diseased bone. A high degree of vascularity, as shown by the color and copious character of the bleeding from the cut surface, and especially any evidence of an established stasis in some of the vessels, should be accepted as indications that the bone so involved is not likely to return to a condition of health. Hugh E. Jones states that no fatal result has occurred in his cases. Facial paralysis is a most distressing result. In order to avoid injuring the facial nerve it is imperative that the operator should see well into the depths of the cavity he is making. Giddiness and vomiting never lasted more than twenty-four hours, and there were no complaints of tinnitus. The hearing in a majority of the cases was improved. Relief was obtained in 5 cases operated upon on account of pain. Failure to completely and permanently arrest the discharge occurred in only a small proportion of the cases. Clarence J. Blake dwells upon the bacteriology of the subject. Lee Morse recommends that wherever there is a reasonable chance the Schwartze method will give a satisfactory result; and where the situation of the sinus, determined during the course of the operation, does not prevent it, Schwartze's operation rather than a Stacke's should be done. Gorham Bacon thinks that a fall in temperature should be expected in all cases immediately after operation, as the temperature may be kept up by the absorption of pus that has occurred.

Milk.—J. M. Rotch,[13] discussing the question, "What is modified milk as distinguished from other preparations of food?" says that the modified milk of the present day is fresh milk made to accurately represent in its percentages of fat, sugar, and proteids, and in its combination of these percentages, the figures written on the physician's prescription. It demands a knowledge, on the part of the physician and of the milk modifier, of the chemistry, physiology, and biology of both human milk and cow's milk and of the principles of modification, which are these: 1. The materials for modification must be fresh, safe, stable, and practically aseptic. 2. There must be accuracy in the modification in the laboratories, so that the exact mixture may result from the prescription. 3. There must be the utmost care in preserving the milk after it is delivered to the consumer. Cows are sensitive animals, easily yielding to good or bad conditions in which they are placed. To obtain milk above suspicion, model farms should be connected with the laboratories, and those who care for the cows should be free from disease and intelligent in regard to cleanliness and asepsis. Laboratory clerks should be intelligent and well trained. The scientific rules which will preserve the milk

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from deleterious changes should be carefully explained to the consumer.

The duty of feeding in every detail should rest with the physician; the duty of producing and supplying the food, with the laboratory. By means of modified milk we have attained this: that physicians have learned to think and speak in percentages, and their thoughts can be embodied in percentage prescriptions which can be put up accurately at the milk laboratories; and these laboratories are under the skilled supervision of those who intend to keep them on an honest scientific basis, irrespective of the commercial value which must necessarily attain to them.

Irving M. Snow[15] gives an account of the movement in Buffalo to secure good milk which was inaugurated at the suggestion of Mrs. Frank T. Williams. The ideas of Dr. Coit, of Newark, were followed, the aim being to secure: 1. A chemical examination of the water supply to cows. 2. Cows free from tuberculosis, to be regularly tested and examined by a veterinary surgeon. 3. Clean, well-ventilated barns. 4. Cleanliness in milking, the cows to be groomed, the udders washed, milkers' hands and garments to be clean. 5. Milk to be at once strained, aerated, and cooled; to be bottled in sterilized bottles, each bottle to be stamped with the hour and day of milking, so that the consumers might have some idea of the age of the milk. 6 Exclusion of brewers' grain from the food of the cattle, and definite rules as to a proper dietary. 7. A monthly chemical and bacteriological examination of the milk, made as are the veterinary's visits, at irregular times, unexpected by the dairymen. 8. A periodical visit from one of the medical committee who critically and thoroughly inspected the whole plant and its methods.

The sale of certified milk has been in operation in Buffalo about eighteen months. The quantity sold varies from one hundred and eighty quarts a day in winter to one hundred and thirty in summer when many of the consumers are out of town. Certified milk is used chiefly for children, for invalids, and families particular as to their milk supply. The effects of the reform in milk supply are highly satisfactory, and a noticeable improvement has taken place in the quality of the average milk sold in Buffalo.

S. E. Getty[16] tells of the Sterilized Milk Dispensary of St. John's Riverside Hospital of Yonkers, and its work, which was started in July, 1894. The aim of the founders was to supply a pure milk, which, properly proportioned and pasteurized and put up in sealed bottles, would be ready for infant feeding. The price of the milk was fixed at such a rate that the poorest could buy it.

The processes of selection of the milk and its sterilization are described. Plain milk is sold in the drug stores in eight-ounce bottles at two cents; modified milk in six-ounce bottles at one cent; milk and barley water in six-ounce bottles at one cent; and plain barley water in six-ounce bottles at one cent.

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The various kinds of milk are delivered at the houses of customers, packed in ice, for three cents a bottle, and special prescriptions are filled at thirty cents daily. Rules for infant feeding are distributed among the poor. In 1894, 31,000 bottles were sold; in 1895, 64,000; in 1896, 78,000; and in 1897 the number increased to 90,000 bottles To ascertain how the work was affecting the death rate, a table was made of deaths among children under 5 years for the months of June, July, August, and September in the years from 1892 to 1896, with the following results: The average number of deaths among children under 5 for the four years from 1892 to 1895 was 162; in 1896 the number was 135—a decrease of 37 deaths, or 17 per cent. The average number of deaths from digestive troubles was 91; in 1896 the number was 48—a decrease of 43 deaths, or 47 per cent. There are now four dairies supplying milk from tested cows under hygienic conditions, not including the dispensary. It is hoped that in time public opinion will compel most or all of the dealers to sell milk from cows which are non-tuberculous and which have been properly groomed, housed, and fed.

Rowland Godfrey Freeman[16] describes the Straus milk charity of New York, which was established in the spring of 1893 with a view of supplying to the poor a clean, safe, and nutritious milk for infant feeding, without the added cost which such products usually involve. The demand for this milk from the start was so great that the plant had to be enlarged to produce a sufficient supply. At first but two sorts of milk were furnished. (1) Pure milk pasteurized in eight-ounce bottles. (2) A milk specially prepared for feeding infants, a one-half dilution with water, sugar of milk, and lime water added as follows: Sugar of milk, 12 ounces; lime water, 8 ounces; milk, 1 gallon; water, 1 gallon. Later, following Dr. A. Jacobi's advice, there was added a one-half dilution of milk with barley water which was sweetened with cane sugar: Table salt, ½ ounce; white cane sugar, 10 ounces; milk, 1 gallon; barley water, 1 gallon. The six-ounce bottles of both prepared milks were sold at one cent each. The eight-ounce bottles of pure milk were sold at one and a half cents each. In the summer of 1893, 34,000 bottles were sold; in 1894 more than 300,000; and during both 1895 and 1896 more than 600,000; while in the five seasons this charity has been in existence it has distributed more than 2,000,000 bottles. The deaths in children under 5 years of age in 1894, 1895, and 1896 were less by 370 than in 1890, 1891, and 1892, and the deaths from diarrheal diseases less by 860.

G. N. Goler[16] describes the methods followed by the Health Department in Rochester, N. Y., in the education of the public in regard to infant feeding. A pamphlet, "How to Take Care of Babies in Hot Weather," was printed for free distribution in English, German, Italian, and Hebrew, giving concisely simple information under the headings: Air, Food and Water, Sleep, Clothing, Bathing. The plan of feeding recommended was

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that devised by Siebert, somewhat modified, as described in the New York *Medical Journal* of October, 1889. A milk depot was established in one of the most populous districts of the city, with a nurse and a bottle-washer in charge. Here *pure* milk is sold, in nursing bottles only, at the price of two cents a pint. The nurse gives information to mothers who come for the milk about the general care of the child, endeavors to pursuade mothers to continue nursing their children if it seems best, and gives directions as to the feeding where the child is bottle-fed. A second depot has been established. The desire of the Health Department has not been to furnish prepared milk at cost and thus make many mothers more helpless than they now are, but it has been to furnish them necessary information in a handy form and to give them the benefit of a teacher-nurse who could tell them about feeding and the habits of their children. Next year the Health Board hopes to rent a stable, put it in perfect order, and keep its own cows.

An editorial[16] commenting upon the foregoing articles upon the subject of certified milk says that the good accomplished by this work is incalculable, and that unquestionably the Straus milk has been the most important factor in the reduction of infant mortality during the past few years in New York. The results in other places have been equally good in proportion to the magnitude of the work. These various movements for securing a better milk supply have in all cases originated with one person. In Buffalo an earnest and philanthropic woman inaugurated the movement, but one aggressive, determined physician has usually been the mainspring of the work.

Mumps Bacteria.—Bein[17] describes the organism of mumps as a streptococcus resembling the gonococcus and the meningococcus in form and intracellular occurrence; it is motile, grows on agar, bouillon, and gelatin, fluidifying the last. It was found in the pus of parotitis, in carefully obtained secretion from Steno's duct, and, in one case, in the blood.

Nasal Adenomata.—Salvatore Saitta[18] devotes many pages to the study of this affection, reporting cases and discussing the history, pathological anatomy, symptoms, etc. His conclusions are the following: 1. Pure adenomata of the nasal fossæ are very rare. 2. Certain mixed forms of adenoma are relatively frequent in that situation. 3. These adenomata have special and individual characteristics, and are not simply secondary hypertrophied glands. 4. They cause certain symptoms, which are not, however, very clearly distinguishable from those of other nasal tumors. 5. As a rule they are benign, but they easily undergo carcinomatous degeneration. 6. Promptness in removing them is therefore essential.

Non-operative Treatment of Chronic Suppurative Disease of the Antrum and Vault of the Tympanum.—Albert H. Buck[19] writes that this plan can often be successfully carried out in private practice when the patients can be depended upon to be regular in their attendance. If the disease has already extended to important neighboring organs, the more radical

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plan of treatment must be pursued. In most cases, if the opening in the tympanic membrane is fairly large, and particularly if it occupies a high position, there can be no question about the propriety of giving the cleansing method a trial. If the opening is small or if it occupies a low position, the simple cleansing method is apt to fail. But even here a limited myringectomy may suffice to overcome this drawback. If the pus, however, finds its way through the membrana flaccida, it is better to proceed at once to an ossiculectomy. The author, in the simple procedure, first removes all granulation tissue, cast-off epithelium, and detritus from the diseased tympanic cavity of the antrum, and then injects hydrogen dioxide, followed by the use of iodoform or one of the more recent antiseptic powders.

Pathogenesis and Etiology of Pavor Nocturnus.—Rey[8] reports 15 cases in detail, ranging from 2 to 10 years of age, and refers to 17 others which have come under his observation. In all, adenoids were present, and their removal by operation was followed by complete cure of the nocturnal fright and cry, which are really due to a mild carbonic acid poisoning occurring during sleep as the result of obstructed breathing. Idiopathic pavor nocturnus cases can undoubtedly be explained on these grounds, and the idea of idiopathic occurrence of the condition must be abandoned. Boys are much more frequently attacked than are girls, but adenoids also occur more often in males.

Psoriasis treated with Thyroid Extract.—Kossel[9] reports the case of a girl 13 years old suffering from psoriasis since the age of 6. Thyroidin was tried, and was followed at first by a marked spreading of the eruption, but finally complete cure was effected.

Rachitis, Lymph Node Swelling in. — Fröhlich[10] has studied a very large number of cases, and finds that rachitis alone is not accompanied by enlargement of the lymph nodes, but that when these are found tuberculosis, a chronic skin disease, or chronic gastro-enteritis will be found responsible for them. Splenic enlargements are far less common than those of the lymph nodes.

Spina Bifida and Encephalocele, Results of Operative Treatment of.—Bayer[11] gives the results of operation in the children's hospital of Prague since the year 1888. Of 17 cases of spina bifida 10 died, and of 8 cases of encephalocele and meningocele 5 died. The results, therefore, are bad, and the writer now operates only upon such cases as are not accompanied by any marked hydrocephalus, paralysis, or complicated anatomical relations of the sac.

The wound should be covered with fascia, muscle, or (in the cranium) dura mater before the skin is drawn over it, in order to make a recurrence impossible.

Spina Bifida Occulta, Operative Treatment of.—Maass[12] describes the case of a 3-year-old girl, brought for paralysis of both legs, which was found to be due to a spina bifida in the region of the twelfth dorsal vertebra, not before noticed.

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Operation was done successfully, with the result that the standing power and the gait were markedly improved, although the walk is not normal.

Streptococcus Enteritidis.—Escherich[15] reviews the literature of intestinal bacteriology and reports 3 cases of enteritis in which a coccus was found, for which he proposes the name of streptococcus enteritidis. Two stages of the disease are evident: the first, during which the cocci are localized in the intestinal tract; and the second, when the cocci have penetrated into the intestinal lymph vessels and caused general infection. The second stage proved fatal in the cases thus far studied.

Syphilis, Hereditary.—E. Paquy[16] states that this disease kills the fetus by means of the placental lesions which it produces. In France, as well as in other countries, much attention has of late been given to the study of the placentæ of syphilitics. Pinard and his pupils have shown that there is an increase in its size and even more in its weight. According to Zeutter the normal placenta weighs about one-sixth as much as the fetus; in the case of syphilitics, Correa Dias concludes that the placenta weighs one-quarter of the fetal weight at term and one-third of the weight of fetus at 7 to 8½ months. This increase in volume and in weight is so typical that its occurrence should lead one to suspect syphilis. It would appear to be due to an endoperiarteritis similar to that produced in other organs by the disease. In this situation it becomes of greater importance than elsewhere, leading to premature birth by death of the fetus or by its disease. It has been conclusively proved that mercury taken by the mother passes through the placenta to the fetus; the same is true of potassium iodide. Pinard recommends one of the following prescriptions:

1. Simple syrup.....300 grammes (10.5 fl. oz.)
 Biniodide of mercury.. 0.10 gramme (1⅔ grains.)
 Iodide of potassium.....10 grammes (2½ dr.)

2. Biniodide of mercury.....0.10 gramme (1⅔ gr.)
 Iodide of potassium.....10 grammes (2½ dr.)
 Peppermint water.....20 grammes (5 dr.)
 Distilled water.....250 grammes (8½ f. oz.)

A tablespoonful at lunch and dinner during the whole of pregnancy.

Tetany in Childhood.—Escherich[17] has studied very nearly three hundred cases of tetany, and finds himself strengthened in his view that children suffering with laryngeal spasm are overwhelmingly often liable to have tetany. In fact, this form of the disease may be classified as the tetany of rachitis, as distinct from the tetany of gastro-enteritis, of the infectious diseases and the pseudo-tetanus. Detailed cases illustrating these groups are reported.

Thyroid Extract.—Francis Huber[18] describes the case of a child who was seen in Dr. Jacobi's clinic. She was 7 years of age, and for about eighteen months had had a goitrous growth, which had increased notably in the past seven months. Its

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lateral measurement was three and a half inches, the vertical about two inches. The mother reported that the child's general intelligence and memory had undergone some deterioration. The thyroidin of Parke, Davis & Co. was given as treatment, one grain daily for three days, two grains daily for three days, and then three grains. Slight restlessness at night was observed after a week's administration of the medicine. After four weeks' use the three bromides were substituted for the extract. In about six weeks the goitre had entirely disappeared. Small doses of the remedy are still given to the patient.

Charles Gilmore Kerley[12] reports a case of exophthalmic goitre apparently cured by the use of the thyroid extract. The patient was a poorly developed girl of 13 years. She had suffered about a year from the disease, which apparently resulted from an accidental blow upon the right side of the neck. When seen by the author the heart was rapid, ranging from 120 to 140 per minute; its action was tumultuous, with throbbing carotids, and without corresponding change in the pulse at the wrists, which was small and soft. The thyroid gland was perceptibly enlarged. Intense pain at the neck prevented holding the head erect, or taking a step without assistance. Previous treatment with drugs, electricity, and baths having failed, the patient was given desiccated thyroid, five grains three times a day after meals. Pain was relieved at once, but returned when the supply of thyroid gave out, to be again relieved when the treatment was resumed. On the fourteenth day of the treatment the pulse was 96. On the twenty-ninth day the patient walked without assistance for the first time in ten months. Indigestion resulting from too large doses of the thyroid, this was reduced to three grains three times a day. On the fortieth day of the treatment the patient could walk alone with comfort, had very little pain in neck, was stronger, and manifested more interest in her surroundings. Discomfort in the stomach still persisting, the dose was reduced to two grains three times a day, which was given for four months. The patient increased in fat and strength, the palpitation ceased. The treatment has been discontinued, the patient being now as well as before the injury, with the exception that there is still a slight enlargement of the thyroid gland and slight prominence of the eyes.

Tic Convulsif.—J. C. Wilson[13] reports a case in a boy 15 years old who had been affected with the disorder for about three years. The paroxysms consist of a definite series of movements accompanied by inarticulate sounds. The movements and sounds are always essentially the same, but differ in intensity and duration, and are more frequent when the boy is aware that he is being watched or examined. Photographs illustrate the nature of the movements. The patient's mental faculties became impaired about a year after the beginning of the trouble; he was restless, irritable, passionate, unable to study or to play with his companions. Treatment in the hospital by nervous sedatives—chloralamide at first, followed by

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hyoscine—rest in bed, an abundant diet consisting largely of milk, and then the administration of chloral, resulted in marked improvement.

Torticollis, Chronic Congenital.—M. P. Redard [23] gives the following rules which guide him in the treatment of this deformity: 1. Operation should be performed as early as the third year. The age of 7 years, considered the best by the majority of surgeons, seems to him to be too old. Under 2 years the operation and the subsequent treatment may be somewhat dangerous and difficult. 2. There should be complete section of tendinous, fibrous, aponeurotic, and muscular tissues which interfere with restoration of the normal position. Open tenotomy allows of section of all retracted parts in cases of long standing. 3. Immediately after tenotomy the cervical scoliosis should be corrected. 4. After operation the normal position should in nearly all cases be maintained by means of simple apparatus which does not interfere with massage and exercise. 5. Daily exercise, both passive and active, should be prescribed after operation. The author describes all these points in detail.

Vaccination.—Augustus Bieser [12] reports 3 unusual cases out of 250 in his own practice. In the first, acute septicemia caused death; by exclusion of other possible causes he held this to be due to a primary vaccination, due perhaps to contaminated virus or to secondary septic infection of the vaccine inoculation. In the second case purpura followed the vaccination, and in the third localized vaccinia. He also reports a case of duplex vaccination. After making a primary inoculation upon the arm of a child, he found a pustule upon the left cheek in about the same stage of development as the one upon the arm, evidently the result of inoculation with the finger nails. He also quotes a case to prove that if you revaccinate a case after five or six days you will usually find that the primary vaccination will be successful while the revaccination will be a failure.

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ORIGINAL COMMUNICATIONS.

THE MICROSCOPICAL EXAMINATION OF UTERINE SCRAPINGS.

BY

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(With twenty illustrations.)

THE studies which form the basis of these papers were commenced at the Frauenklinik in Dresden, where, through the kindness of Prof. Leopold, I had access to the rich pathological material of that institution. Since my return from abroad I have continued these studies with the aid of material obtained, through the kindness of Drs. Krug and Foerster, from the German Hospital, together with material (especially carcinomatous) which Dr. Coe has kindly placed at my disposal, and with material obtained from various private sources as well as from my dispensary classes.

In this paper I shall confine myself to the examination of non-malignant tissues, reserving for a future time the discussion of those which are malignant. The technique in the examination of uterine scrapings is the same whether we are examining malignant or benign tissues, and it is only for the sake of convenience that I desire to make the classification.

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Since the classic pioneer paper on "Uterine Scrapings" by Ruge and Veit in Germany, the literature of this subject in that country has grown to enormous proportions, and in all the clinics of any standing that I visited all uterine scrapings were regularly submitted to a microscopical examination. That the results have been gratifying is proven not only by the literature, but also by the universal adoption of the method. The same may be said of the other Continental countries. In England and America, curiously enough, the method has not been so generally put into practice. True, it requires much time and labor to prepare the scrapings for examination, nor is the examination itself a simple matter; for we do not in our scrapings obtain the proper relations of the tissues scraped away to one another. The uterine cavity is thoroughly scraped out, and this débris we afterward examine in the field of the microscope. Then, again, it is well known that we may have normal endometrium in one part of a uterus and far advanced endometritis in another part. Yes, even malignant degeneration may be present in one part of the endometrium, and our scrapings may show approximately normal mucous membrane in other parts. This being true, it is evident, in the first place, that we should endeavor to obtain as much as possible of the uterine mucous membrane for examination, and, in the second place, that the microscopical examination should be as thorough as possible. For this purpose it is not enough to obtain a few large pieces from the scrapings and make sections of them, but *all* the tissues removed from the uterus should be submitted to examination.

The Preparation of the Material for the Microscope.—As regards the best method of treating the scrapings opinions differ greatly. Some prefer freehand sections, others frozen sections; some imbed the scrapings in celloidin, others in paraffin. The freehand sections are open to several serious objections. It requires much practice before one is able to obtain thin sections by this method, and even then they can hardly be so thin or so even as when cut with a microtome. Frozen sections are likewise not thin enough; and, moreover, the finer relations of the cells are much distorted by the rapid shrinking due to the freezing. But I do not mean to assert that we cannot often make a diagnosis with this method, even if the sections are not applicable for careful study. We then have left the imbedding processes in connection with the microtome. With celloidin we can obtain fairly thin sections, but

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we must be ready to cut when the celloidin is of the right hardness. If we wait longer than this the celloidin becomes too hard and section-cutting is difficult and sometimes impossible. Moreover, just in this kind of work we often wish at a future date to make more sections from the same block, as we may have found a suspicious place in one of our sections and desire more sections to confirm our suspicion. Here celloidin fails us entirely. I have made sections by all these different methods before taking up the paraffin method; since adopting the latter I have entirely given up the others. It gives beyond doubt the thinnest sections, it allows serial sections to be readily made, and, what is of great importance, we can at any future time make more sections from the same block which will be just as satisfactory as the first ones. This is an advantage which cannot be overestimated. Moreover, we can readily imbed a large number of small pieces in one paraffin block and cut them at the same time.

The method in vogue at Leopold's Clinic in Dresden, and which I practised there, is as follows: 1. Specimens remain in four per cent formalin for two hours. 2. Dilute alcohol in increasing strength twenty hours (specimens are placed in absolute alcohol within twenty-four hours from the time they are obtained). 3. Absolute alcohol twenty-four hours. 4. Xylol two to six hours, depending on the thickness of the specimen (until it becomes translucent). 5. Saturated solution of paraffin in xylol, three to six hours. 6. Paraffin I. (remnants of used paraffin which contain some xylol), three to six hours. 7. Paraffin II. (pure paraffin, containing no xylol); specimens remain in this until they have been in paraffin twenty-four hours in all.

A small dish moistened with glycerin receives the specimen and the liquid paraffin. It is cooled quickly by placing the dish in cold water. The paraffin block with the specimen enclosed readily comes away from the dish, as it has been lubricated with glycerin. With a warmed knife a cube of paraffin with the specimen in the centre is cut and made to adhere to a small metal (paraffin) table; or the paraffin block may be mounted on a small wooden block by simply warming the under surface of the paraffin and sticking it on the wooden block. Paraffin which melts at 50° to 55° Celsius will be found to be most serviceable. I have convinced myself that with this method the most excellent results can be obtained. It is, however, somewhat complex, and I have modified it in some respects

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with the object of rendering it more simple without detracting from its usefulness. As the specimens are usually obtained at a distance from the place where they are to be examined, I substituted a one per cent or two per cent solution of formalin for the four per cent solution. In this solution I allow the specimens to remain until it is convenient to transfer them to the alcohol. The formalin, better than any other known agent, preserves the normal relation of the cells to one another and to their surroundings. Hemorrhage into the tissues is also preserved thereby, and in the cut sections each individual



FIG. 1.[1]—Obj. DD, Oc. 4. × 420. Scrapings from an abortion through a portion of decidua, showing so-called "decidual cells."

blood cell can be distinguished. From the formalin solution I transfer the specimens into ninety-five per cent alcohol. In this they remain twenty-four hours, and are then placed for the same time in absolute alcohol. From the xylol I place them in liquid paraffin, in which they remain for twenty-four hours at a temperature of 50° Celsius.

[1] The illustrations are all photomicrographs from specimens of my own. The microscope employed was a Zeiss, attached to an ordinary camera. Some of the pictures were taken with a special photographic eye-piece.

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After the sections are cut they are transferred to a dish containing warm water; on this the specimen flattens out. A cover glass, from which the fat has been carefully removed by ether or alcohol, is immersed under the floating section, raised, and the section, which adheres to the cover glass, is lifted with it. After as many sections as are desired are mounted in this way, they are transferred to the paraffin stove, where they remain for ten or fifteen minutes. The cover glasses, with the adherent specimens, are now placed in xylol to dissolve the

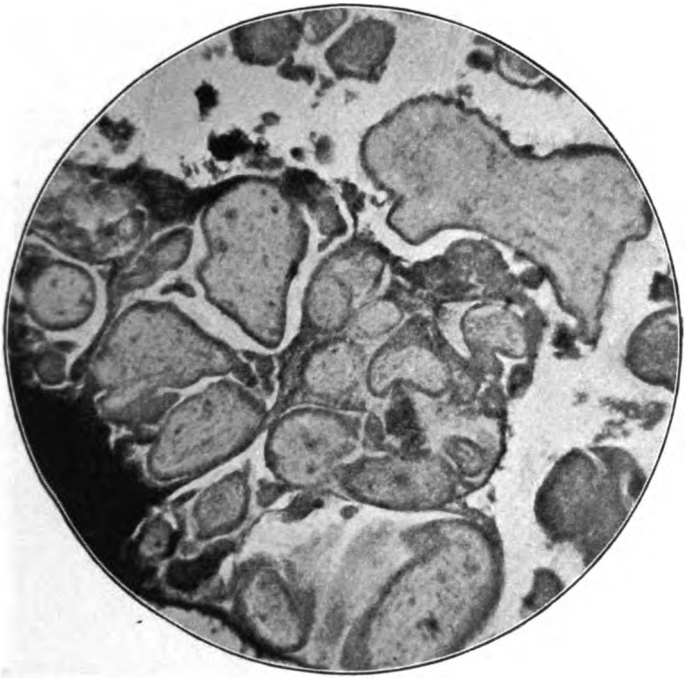


FIG. 2.—Obj. AA, Oc. 4. × 90. Showing cross-sections of placental villi. The dark portions of the picture represent hemorrhagic areas.

paraffin, next in ninety-five per cent alcohol, and then washed in water. They can now be stained by any desired method, the final step being the clearing in xylol (instead of an oil) and mounting in balsam.

Instead of mounting one section on each cover glass, I frequently mount several sections on one slide and thereby save time and labor.

By this method I am enabled to obtain uniformly thin and even sections, which, especially in studying some of the phases

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of endometritis, is of the greatest value. Where a diagnosis is to be quickly made one of the various freezing microtomes can be used, the sections being afterward immersed in formalin; although I have been able to make a diagnosis with the paraffin method in twenty-eight hours.

The following excellent method was introduced at Johns Hopkins Hospital: 1. Freeze with ether and cut. 2. Sections are placed in a five per cent aqueous solution of formalin three to five minutes. 3. Fifty per cent alcohol, three minutes.



FIG. 3.—× 140. Same as preceding, higher magnification.

4. Absolute alcohol, one minute. 5. Wash in water. 6. Stain in hematoxylin two minutes. 7. Decolorize in acid alcohol. 8. Rinse in water. 9. Stain with eosin. 10. Ninety-five per cent alcohol. 11. Pass through absolute alcohol, then either creosote or oil of cloves. 12. Mount in balsam.

Pick, at Landau's clinic in Berlin, has modified this method thus: Two per cent formalin, two to three minutes. Water, one-half minute. Alum-carmine, four per cent, three to four minutes. Water, one minute. Alcohol, eighty per cent, one

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minute. Absolute alcohol, ten seconds. Carbol-xylol, one minute. Balsam.

Nagel, at the Charité in Berlin, pursues the following method: 1. Scrapings washed in water. 2. Flemming's solution (ac. osmic 2.0, ac. chromic 3.75, ac. acetic 25.0, aq. dest. ad 500.0); in this the scrapings remain two to three hours. 3. Alcohol, six to twelve hours. 4. Cut with freezing microtome Stain with safranin. By this method serviceable sections can be obtained within twenty-four hours.



Fig. 4.—Obj. AA, Oc. 2. × 50. Extreme stage of glandular endometritis. The whole endometrium is composed of hypertrophied and newly formed glands, with very little interstitial tissue.

As I have remarked before, in order that the microscopical examination may be thorough, as much as possible of the endometrium should be removed. As a rule the cervix must be dilated for this purpose, but often an anesthetic is not necessary. A Martin spoon, which is long and narrow, is particularly valuable for this purpose, as it can be introduced into the uterus after slight dilatation. Such a dilatation can be brought about by a metallic dilator, by Hegar's stems (of glass or hard

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rubber), or, as is practised by Landau, by means of gauze packing.

Before undertaking the study of uterine scrapings in their relation to disease, it is hardly necessary to say that a thorough knowledge of the normal tissues and their relations to one another is a *sine qua non;* and many approximately normal scrapings must be studied before one is enabled readily to distinguish the pathological from the normal. Then, again, we must bear in mind that we have to deal with tissues which at different periods and under different circumstances are nor-

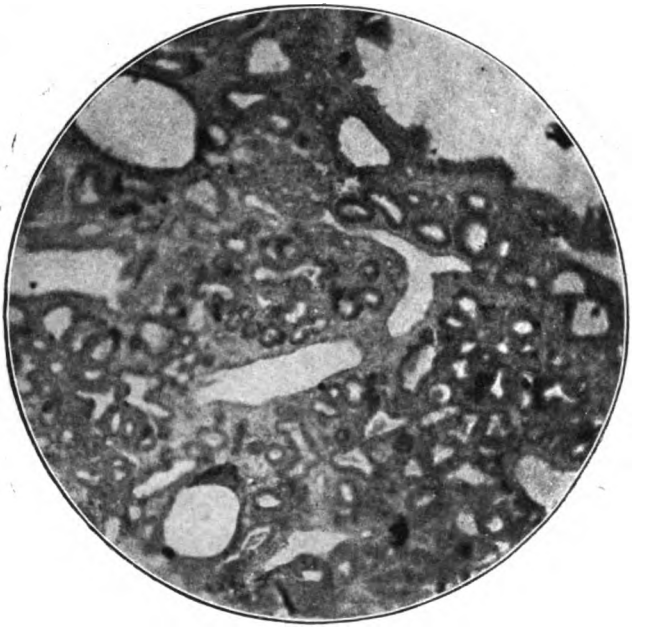


FIG. 5.—Obj. AA, Oc. 2+. × 60. Marked glandular endometritis. The number of glands is largely increased in number; some are cystically dilated. The glandular epithelium is mostly in multiple layers. The amount of interstitial tissue is small.

mally subject to very great changes. We need only compare the uterine mucous membrane of a young child with that of a mature woman at the time of menstruation, or compare the uterine mucosa in the early months of gestation with that in old age. We must be acquainted with the normal membrane at the different physiological periods, and must bear its structure in mind when examining our scrapings. So we see that when we attempt to diagnose disease from the microscopic examination of tissues removed by the curette, we have a complex

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problem before us. Nor is this complex problem rendered any simpler by the fact, before mentioned, that we may find the mucous membrane in one part of the uterus in a state of chronic inflammation, even in a state of malignant degeneration, and in another part find normal mucous membrane. So in examining the pieces of membrane removed by the curette we often find under the same cover glass the normal and the pathological side by side. We may look carefully through several sections before finding a place which we can properly call patho-



FIG. 6.—Obj. AA, Oc. 4. × 100. Glandular stage of endometritis, showing hypertrophied tortuous glands with the epithelium in places in multiple layers. *a*, *a*, *a*, columnar epithelium lining interior of uterus; *b*, *b*, *b*, stroma rich in large round cells; *d*, duct of a gland formed by the lining epithelium of the uterus.

logical. Bearing all this in mind, it is evident that we have to deal with peculiar conditions. It is decidedly a special line of work, often requiring an enormous amount of labor which only the man who is specially interested can be expected to devote to it. On the Continent I was struck by the fact that gynecologists everywhere examined the scrapings of their cases themselves, and did not, as in other branches of surgery, ask

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the general pathologist to come to their aid. We cannot expect a general pathologist to take the interest and to spend the great amount of time that is often required in such cases to arrive at a satisfactory result.

At a recent meeting of the New York Obstetrical Society the consensus of opinion was that only in exceptional cases could the pathologist diagnose malignant disease from the uterine scrapings before the diagnosis could be made with reasonable certainty by other means. This, surely, is not as it ought to be, and is not, I can confidently assert, as it is abroad. And I

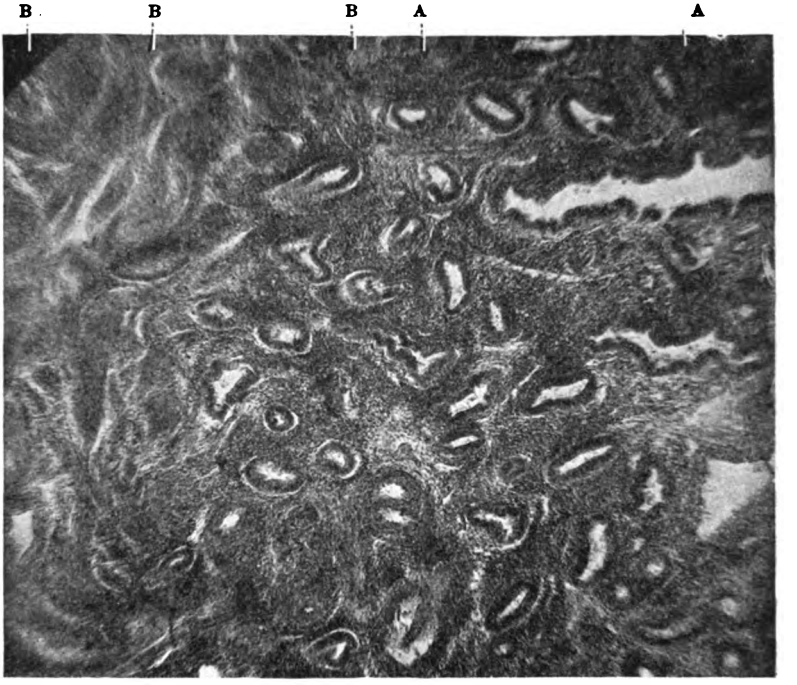


FIG. 7.—Obj. AA, Oc. 2. × 50. From a case of glandular endometritis at the fundus, showing how the glands dip down irregularly into the muscularis. The glands are increased in number, and are seen partly on longitudinal section, partly on transverse section. A, A, mucous layer; B, B, B, muscular layer.

firmly believe the cause for the far more satisfactory results obtained abroad is to be looked for in the fact that there the microscope is in the hands of the specialist, who makes daily use of it. In our special line we wish to diagnose normal tissues at the different periods of life, abortion, the various forms of endometritis, besides the malignant processes. If we did not know that the so-called "decidual cells" are not path-

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ognomonic of gestation, if we did not remember that they occur in certain forms of endometritis, in membranous dysmenorrhea, and under other conditions, we would jump at the diagnosis gestation as soon as we saw "decidual cells" under the microscope. And in what a position we would often place our patient! If we did not know that at certain stages of endometritis we may find a large infiltration of spindle-shaped cells, we would, as soon as we saw such a collection of cells, make a diagnosis of sarcoma. If we did not bear in mind that nor-

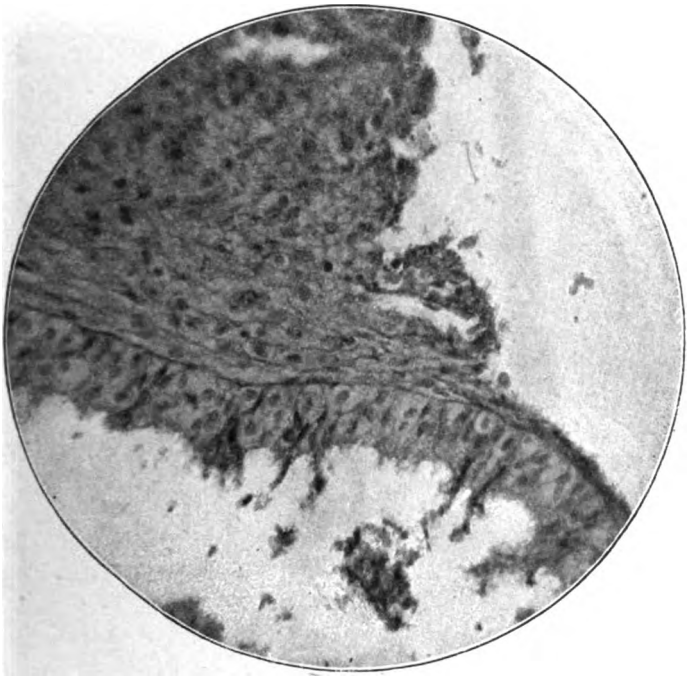


FIG. 8.—Obj. DD, Oc. 4. × 420. Glandular endometritis, showing multiple layer of epithelial cells lining a gland.

mally there is no sharp line of demarcation between the uterine mucous membrane and the muscularis, and that the glands dip down irregularly into the latter, we would, when such a picture presented itself, promptly say we had to deal with an adenoma. It would be useless to enumerate further examples; decidedly, uterine scrapings should be examined by the gynecologist himself.

Normal Histology.—The vaginal surface of the cervix uteri is covered with several layers of squamous epithelium.

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Underlying this epithelium is a wide connective-tissue layer containing arteries, veins, and capillaries. If we follow the flat epithelium along we find that it ends near the os externum (the line of demarcation varies with different individuals), to give way to a single layer of cylindrical epithelial cells (supplied with cilia, which, however, are rarely seen in hardened specimens) which lines the cervix and body of the uterus. This cylindrical epithelium dips down into the deeper layers of the cervix and forms the cervical glands. These glands are quite superficial, being bottle- or balloon-shaped, and lie in a

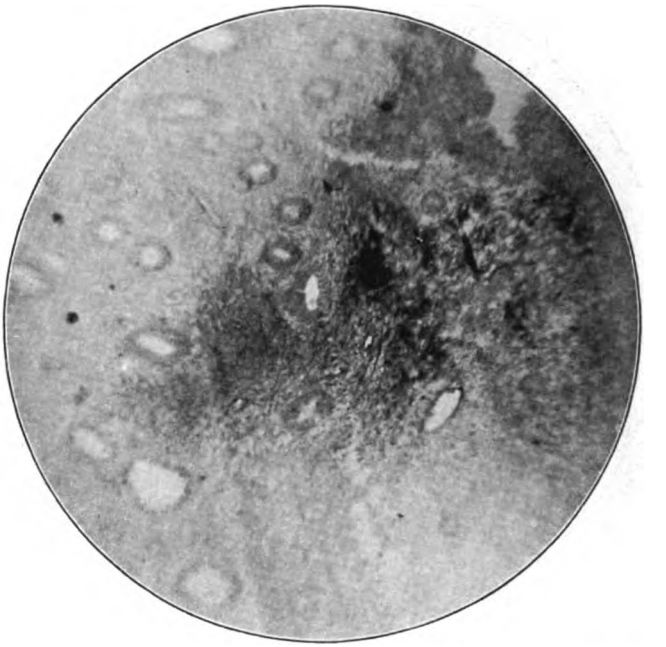


FIG. 9.—Obj. AA, Oc. 2. × 50. Glandular endometritis, showing hemorrhage into the interstitial tissue. The darker areas represent the hemorrhage.

stroma rich in connective-tissue cells and well supplied with blood vessels. The epithelial cells on the surface, as well as in the glands, are cylindrical, much longer than those in the body of the uterus, and have a nucleus that lies at the very base of the cell. The mucous membrane goes over gradually into the muscularis and is less rich in cells, for which reason it is more difficult to remove with the curette than that lining the body of the uterus. The deeper layer consists of muscular tissue, into which the fundi of the glands dip. There is no submucosa

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in the uterus, neither is there a sharp line of demarcation between the glandular and muscular layers. So we find normally the glands dipping to various depths in the muscularis. The glands are straight, or corkscrew-shaped at times, but do not show the tendency to branching that is seen in the cervical glands. In the cervix, owing to the well-known "arbor vitæ" arrangement, the surface of the mucous membrane, and with it the number of glands, is considerably increased.

Therefore more mucus is secreted normally and pathologi-

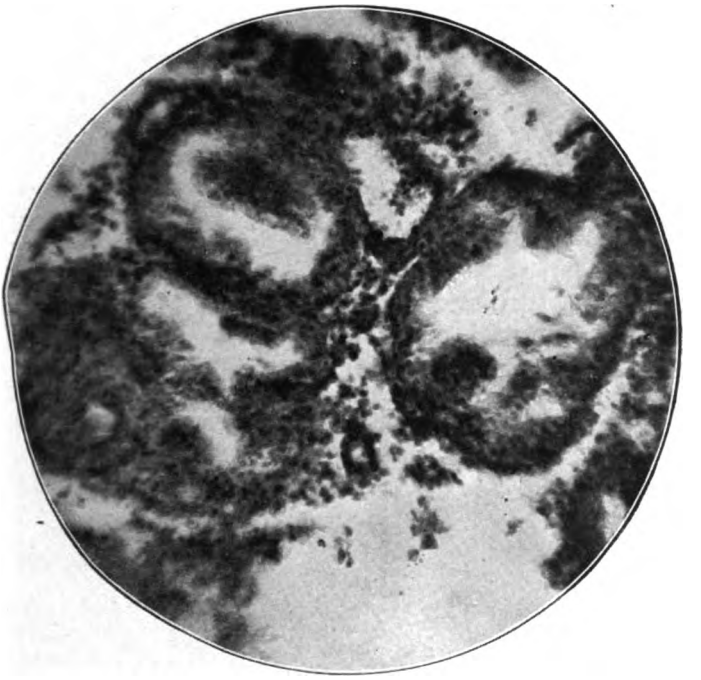


FIG. 10.—Obj. DD, Oc. 2. × 240. Glandular stage of endometritis, showing epithelial proliferation projecting into the glandular lumen—entirely benign in character, and not to be confused with a malignant epithelial proliferation.

cally by the cervical than by the uterine glands. As we approach the fundus the glandular layer becomes narrower and the muscular layer wider. The glands, both in the cervix and in the corpus, are lined with a single layer of ciliated epithelium similar to the surface layer. The stroma of the mucous membrane of the body of the uterus consists largely of oval nuclei (the cell limits can be distinguished only with difficulty); here and there we find also spindle-shaped nuclei. As regards the blood supply, the muscular layer contains the larger arteries

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and veins; the nearer we approach the mucous membrane the more these divide and subdivide, and it is only in the layer of mucous membrane adjacent the muscularis that we find even small arteries or veins; in the rest of the mucous membrane only capillary vessels are found.

Abortion.—I propose now to take up the subject of the diagnosis of abortion in the early months from the examination of the uterine scrapings.

The decidua vera, which is present on the whole interior sur-



FIG. 11.—Obj. A A, Oc. 2. × 50. Shows increased number of glands, which are, however, small, although the glandular epithelium is at times in several layers; dilated veins, some interstitial hemorrhage. In the interstitial tissue enormous increase in the number of cells—chiefly small round and small spindle cells. The detail is better seen in the next figure, which is a higher magnification of the same picture.

face of the body of the uterus with the exception of the placental site, consists, during the first two months, of the proliferated mucous membrane. Its superficial as well as glandular epithelium is devoid of cilia, is *low* cuboidal, and contains large, round, spindle-shaped or star-shaped cells, the so-called "decidual cells." These are well shown in Fig. 1. The mere presence of decidual cells is not diagnostic of gestation. Even

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if a triangular sac, with three openings corresponding to the internal os and the two tubal openings, be found, we cannot make the positive diagnosis of pregnancy therefrom. For we find this same condition in dysmenorrhea membranacea. If the glandular epithelium is low and more cuboidal, and the decidual cells are present besides, then the diagnosis gestation is almost certain. The cuboidal epithelium alone is not sufficient to base a diagnosis on, as that is also found in carcinoma of the body of the uterus, in the mucous membrane covering

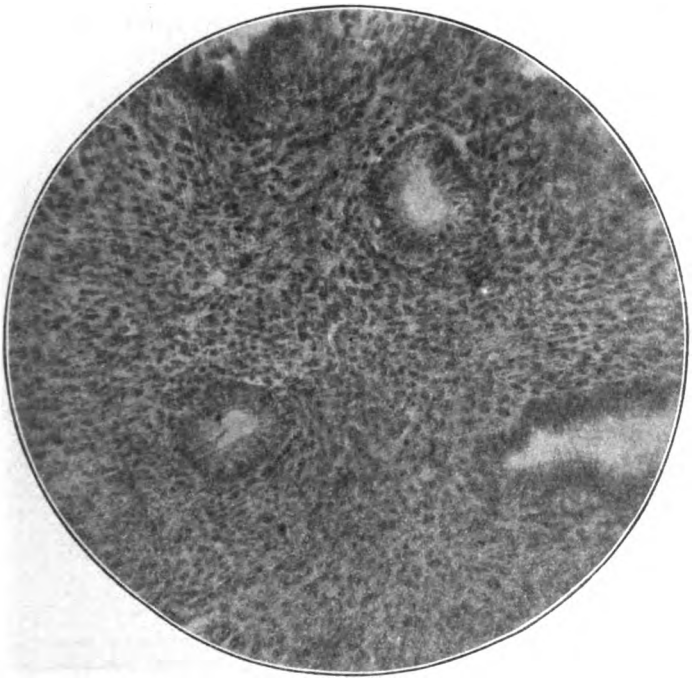


FIG. 12.—Obj. DD, Oc. 2. × 240. Same as Fig. 11, higher power.

fibromyomata, and in the glands of sarcomatous uteri. *But* for the positive evidence of a preceding gestation we must find the characteristic chorionic villi with their connective tissue rich in blood vessels. Once we find such pictures as are shown in Figs. 2 and 3, and all doubt as to the diagnosis is set at rest.

Endometritis.—In approaching the study of endometritis we are met at the outset by a difference of opinion as to the classification of the different forms of this disease. Do the microscopical pictures we see of a hypertrophic inflammation,

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of an atrophic inflammatory process, and of combinations of these two, represent distinct diseases? Or are they different manifestations of the same disease? Are bacteria absent in the hypertrophic process and present in the atrophic? Or do bacteria play only a secondary rôle in both?

Ruge, to whom belongs the credit of having first placed the subject of endometritis on a scientific basis, speaks of (1) endometritis glandularis (hypertrophic), (2) endometritis interstitialis (atrophic), (3) endometritis glandularis et interstitialis, being a combination of (1) and (2). Veit now looks upon the combined form (3) as an interstitial inflammation developing



FIG. 13.—Obj. AA, Oc. 2. × 50. At the upper part of the picture is seen the lining membrane of the uterus, consisting of cylindrical epithelial cells. The mouths of two glands are also to be seen The glands are increased in number as well as in size. The glandular epithelium is mostly in multiple layers. The interstitial tissue is very loose in character and uniformly permeated by hemorrhage. The capillaries are increased in number, dilated, and filled with blood.

on top of a pre-existing endometritis glandularis. The glandular inflammation he looks upon as a hyperplastic form of the mucous membrane, and the etiology he looks for in irritations which affect the endometrium indirectly—*e.g.*, sexual irritations, disease of the ovaries, masturbation. The cause of the interstitial endometritis Veit attributes to infection. He explains the combined form thus: An endometrium which is the seat of a glandular inflammatory process becomes, through

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bacterial infection, also the seat of an interstitial inflammation, and thus there is both a glandular and an interstitial endometritis in the same endometrium. Whether this ingenious theory of Veit's be correct or not, there are many who believe that the atrophic stage is a later form of the hypertrophic. Certain it is that the atrophic condition is found only where the disease has existed for a long period. Then, again, do we not find in other organs that a hypertrophic stage is followed by an atrophic one? Moreover, both inflammations may spread very

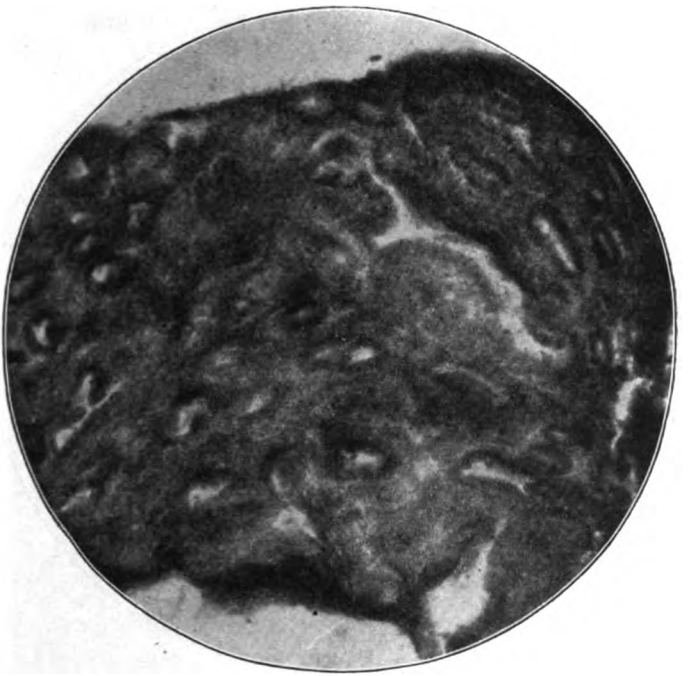


FIG. 14.—Obj. AA, Oc. 4. × 90. Showing glandular proliferation as well as changes in the stroma—the so-called "endometritis glandularis et interstitialis" of Ruge. The glands are increased in number, some also in size; and there is also a proliferation of the connective-tissue cells in the stroma.

slowly, so that we often see in the scrapings from a uterus areas showing the hypertrophic stage, others the atrophic, and still others approximately normal endometrium. Here again there is a warning to examine all the scrapings removed from the uterus to determine the character of the inflammation which has its seat there.

According to Orth the cause of the atrophy is an induration of the interglandular part of the mucous membrane. The

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round cells have disappeared or have become metamorphosed into spindle-shaped cells. The glands have either entirely disappeared or there are atrophic remnants of them present. But there are many sections that show quite a number of glands still preserved and where the atrophy is only just beginning. In this fact we find another argument in favor of looking upon the atrophic stage as a later period of the hypertrophic. In reply to the position Veit maintains as regards the rôle that bacterial infection plays in chronic endometri-

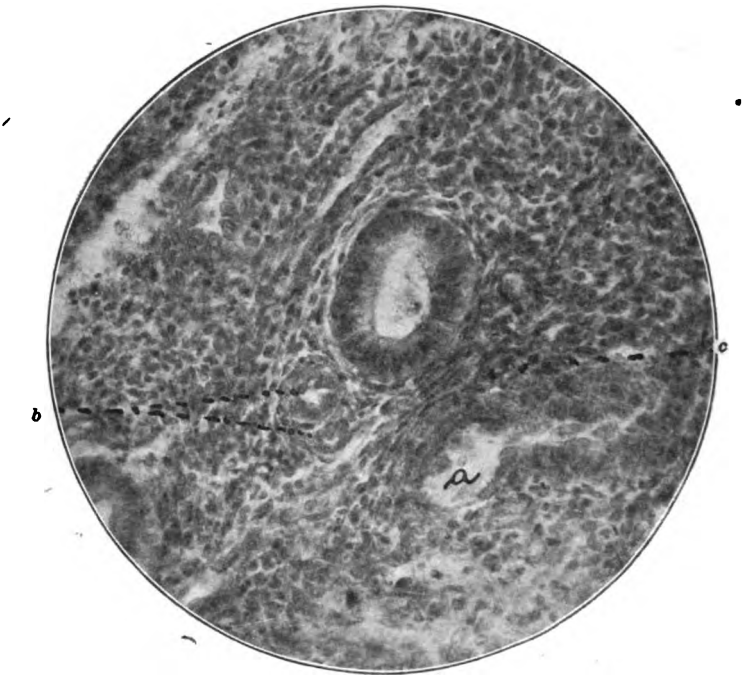


FIG. 15.—Obj. DD, Proj. Oc. 4. × 420. Interstitial stage of endometritis. *a*, remains of glands formerly functionating; *b*, capillaries with swollen endothelial cells. Enormous increase of small round and spindle cells, which by their pressure are causing glandular atrophy; this is especially noticeable at *c*.

tis, it is but fair to say that the investigations in this direction have been neither satisfactory nor conclusive. Solowjeff finds bacteria in the cervix in most cases of endometritis. In chronic endometritis he finds the non-pathogenic bacteria predominant. Brandt found cocci and short bacilli in the mucous membrane of the corpus uteri. Döderlein had negative results, as did Pfannenstiel. Bumm reports finding germs in some cases, but was not satisfied with his investigations in this

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direction. The reason for this difference of opinion and for these in general unsatisfactory results is not far to seek. To make bacteriological examinations of the uterine mucosa we ought to introduce a sterile instrument into the vagina, through the cervical canal into the interior of the uterus, and this instrument ought to come into contact with nothing until it touches the uterine mucosa, and likewise, in withdrawing it, it ought to touch no other tissues. Practically this is exceedingly difficult to do, except where we have a gaping cervix, and under

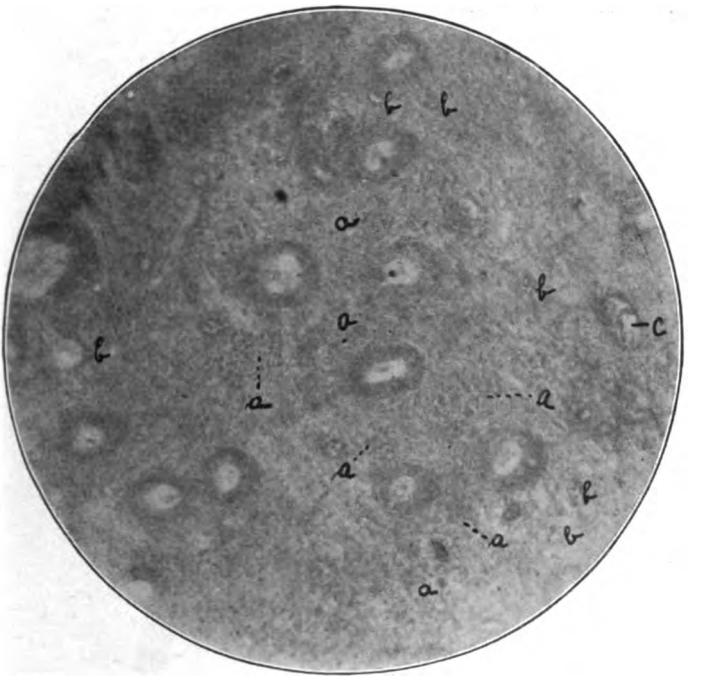


FIG. 16.—Obj. AA. Oc. 4. × 90. Combined glandular and interstitial stage. The glands, though small, are increased in number. The changes in the interstitial tissue are marked. There is a proliferation of the connective-tissue elements. *a*, *a*, *a*, areas of round-celled infiltration; *b*, *b*, *b*, capillaries with swollen endothelial cells; *c*, dilated vein.

these conditions we would naturally expect bacteria to enter the uterine cavity from the vagina.

To return now to the different forms or stages of endometritis. The microscopical examination of different parts of the endometrium shows different results, not due to different diseases, but to different stages of the same disease—there is a quantitative rather than a qualitative difference. So we are inclined to look upon the various pictures of a chronic endometritis as

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different stages of one and the same disease. From the extreme hypertrophic stage, where there is but little interstitial tissue between the largely increased and increasing uterine glands, to the extreme atrophic stage, where we find only here and there the remnant of a former functionating gland, there are clinically and microscopically an infinite number of stages which we shall look upon as different phases of that complex disease—chronic endometritis.

With the acute endometritis we have here little or nothing to do, for it is so manifestly against the best interests of our



FIG. 17.—Obj. AA, Proj. Oc. 4. × 90. Interstitial stage of chronic endometritis, showing small glands, some in condition of atrophy; many capillaries; round-celled and spindle-celled infiltration of the stroma.

patients to curette the uterus for this disease that our studies have not extended in this direction.

What do we find in the first stage of chronic endometritis? At first there is merely an increase in the size of the glands; later there is added to this an increase in their number. They branch out laterally, and on section often appear corkscrew-shaped. If this glandular hypertrophy and this development of new glands are carried to an extreme, we may find the whole mucous membrane consisting almost entirely of func-

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tionating glands with very little interstitial tissue. As I have pointed out above, the glands in the normal endometrium extend irregularly into the muscularis. In the first stages of endometritis the glands dip down still more into the muscular layer (Fig. 7).

Besides the increase and hypertrophy of the uterine glands there is a hypertrophy of the glandular epithelium. The cells are increased in size and number, and instead of finding them lining the gland in a single layer we often see two, three, or

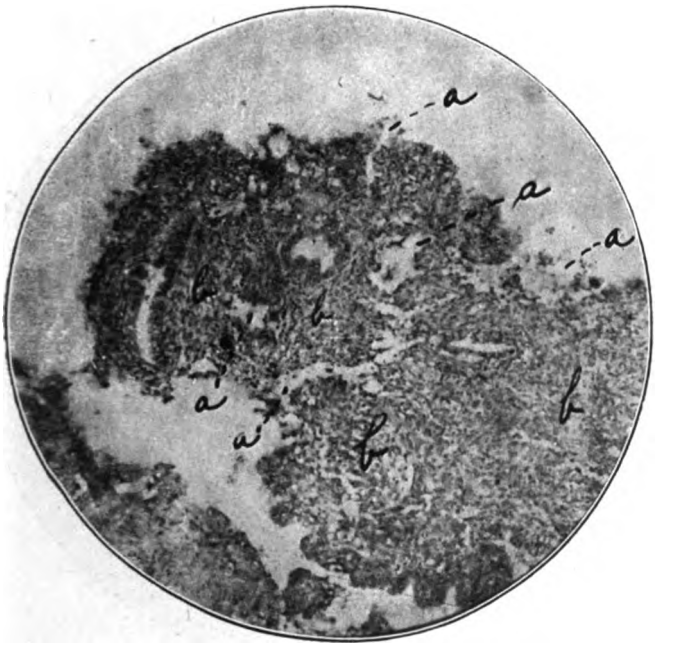


FIG. 18.—Another field from the same specimen as the preceding picture. *a*, *a*, *a*, glands in various stages of atrophy; *b*, *b*, *b*, hypertrophied interstitial tissue.

even four layers. We find, besides, hemorrhages into the glands as well as into the interstitial tissue. Here formalin serves us well, as we are enabled, by first placing our scrapings in it, to distinguish in our sections each individual red blood cell. In the interior of the glands we often find mucus. In some cases the lumina of the glands are cystically dilated and no longer appear circular on cross section. As regards the changes in the blood vessels, I can substantiate what Van Tussenbroek and De Leon found—namely, the almost constant swelling of the endothelial cells of the capillaries This is sometimes so

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marked as to give the impression that the endothelial cells almost occluded the lumen of the vessel. I have also found in this stage of chronic endometritis dilatation of the veins, and small arteries with thickened walls. Pinkuss states that he often found the stroma bloody, but uniformly so, and warns against mistaking this for the menstruating endometrium. Only in exceptional cases did he find localized hemorrhagic areas. In the moderately advanced stages of hypertrophic endometritis I have frequently met with such local hemor-



FIG. 19.—Same as preceding picture, showing various hemorrhagic areas. The blood in the tissues takes up the eosin very readily, which, being a non-actinic color, appears dark in the print.

rhagic areas in the interstitial tissue (Fig. 9). Where the interstitial tissue is dense the hemorrhages are naturally localized; where it is not dense the hemorrhage is more diffuse. These hemorrhages account for the atypical loss of blood from the uterus that we often find in this stage of endometritis. Sometimes the multiple epithelial layers project irregularly into the lumen of the gland; this condition must not be mistaken for a malignant epithelial proliferation. Its occurrence is quite common in the glandular stage of endometritis. At

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this stage the changes in the stroma play a minor part. As mentioned above, the greater part of the mucous membrane is composed of the hypertrophied and newly formed glands. The mucous membrane is soft, succulent, and very much increased in size, and the amount that can be scraped away from the uterus is sometimes very great.

This, then, is the glandular or hypertrophic, the first stage of a chronic endometritis, the so-called endometritis glandularis of Ruge and Veit. Between this picture and that of the extreme interstitial stage there are many intermediate steps. Moreover, the transition is a gradual one—it may be going on

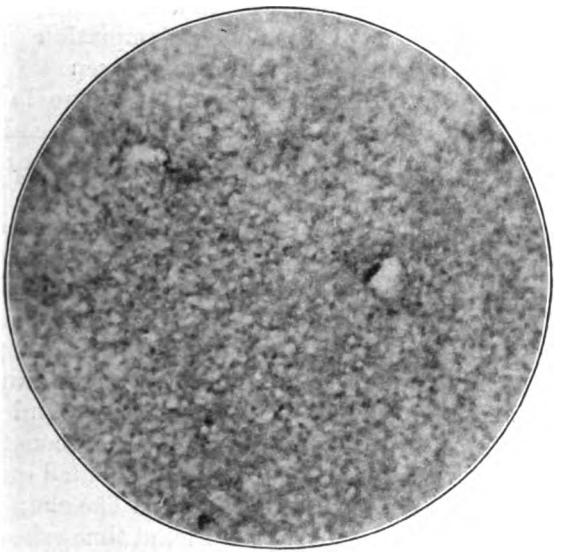


FIG. 20.—Obj. DD, Proj. Oc. 4. × 420. Extreme interstitial stage, showing remains of two glands, almost devoid of epithelium. The remains of the former mucous membrane consist almost entirely of connective-tissue cells.

for years—and so we often find in the scrapings taken from a uterus areas which show a glandular process next to those showing an interstitial process. As the interstitial process persists we find the cells of the interstitial tissue encroaching more and more on the glandular epithelium, finally forcing their way between the epithelial cells and even into the lumen of the gland. The pressure of these proliferating stroma cells causes glandular atrophy. The lumen of the gland becomes filled with connective-tissue cells, the glandular epithelium

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disappears, and finally the only remaining trace of a former functionating gland is the concentric arrangement of the connective-tissue elements which we see here and there. The interstitial tissue undergoes a dual change. A small round-celled infiltration takes place, and hand in hand with it a proliferation of the stroma cells, chiefly small spindle cells and small round cells. The connective-tissue cells themselves become irregular, shrink, and break down. Accordingly we find the atrophic mucous membrane characterized by a firm interstitial tissue containing small round and spindle-shaped cells, with very few glands, possessing narrow lumina and small epithelium. Hemorrhages may take place, but owing to the unyielding nature of the tissue they are circumscribed. In the earlier stages of this phase of the inflammation glands may be present in good number; there may even be glandular hyperplasia in places, but the interstitial tissue largely predominates. This is due to the fact, as was already pointed out, that the inflammation advances very slowly from one part of the mucous membrane to the other.

In the last stage the mucous membrane as such is entirely destroyed, the glands have disappeared, and all that remains is a connective-tissue membrane rich in small round and spindle-shaped cells, with here and there areas of leucocytes. The epithelial element—so prominent in the hypertrophic stage—is entirely absent; there is no superficial epithelium and no secreting glandular epithelium. We sometimes find cystic degeneration of the glands, due to their partial constriction by the surrounding tissue. As Schröder first pointed out, some of the stroma cells resemble decidual cells. The changes in the blood vessels consist of thickened walls, at times showing hyaline degeneration and obliterated lumina.

In this stage the amount of tissue that can be scraped from the uterus is very small compared with what we obtain in the glandular stage.

In the scrapings obtained from a case of endometritis post abortum or post partum we frequently find, even months after the abortion or the labor, small areas of decidual tissue with the larger "decidual" cells.

Complicating fibroid tumors we see both the glandular and the interstitial stage of endometritis. As Wyder pointed out in his pioneer papers on this subject, where there is much muscular tissue between the tumor and the endometrium glandular proliferation takes place; but as the fibroid approaches

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nearer to the mucous membrane there is more and more proliferation of the interstitial tissue.

Before leaving the subject of endometritis a few words about the variety of endometritis following gonorrheal infection will not be out of place. The specimens I have examined were all taken from cases of several months' standing, these being the ones in which the curetting of the uterus is indicated from a therapeutic standpoint. The glands are not increased in number, though most of them are dilated. The glandular epithelium is often found in three or four layers. I found considerable interstitial hemorrhage, rather evenly distributed, pointing to a loose interstitial tissue. In the stroma itself there are areas of small round-celled infiltration together with some spindle cells. I also found a considerable number of "decidual" cells. The capillaries are dilated and increased in number. All attempts to demonstrate the gonococci in these old cases I found futile. There are but few cases on record in which the gonococci have been found in the endometrium more than three months after the time of infection.

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THE DIAGNOSTIC VALUE OF MICROSCOPICAL EXAMINATIONS, ESPECIALLY OF SCRAPINGS, IN UTERINE DISEASE.

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DURING my studies of the pathological anatomy of the female generative organs in the pathological laboratory of the Johns Hopkins University and Hospital under the direction of Prof. Welch and Dr. Cullen, I have been so much impressed with

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the practical value of microscopical examinations as an aid to clinical diagnosis that I have thought it might be useful to present in this paper some of the results of my study and observation.

Clinical examinations and clinical histories do not always justify a positive diagnosis of diseases of the female generative organs. In these days, when operative measures, often of a serious nature, are extensively employed in the treatment of many of these diseases, it is evident that every means at our disposal should be used to establish the diagnosis before attempting radical procedures in treatment. We spare no pains to insure the safety of our patients by the strictest attention to the details of aseptic or antiseptic surgery, by care in the use of anesthetics, and by attention to the management of the patient before, during, and after operation. It is no less important that we should avail ourselves of every means at our disposal to reach a positive diagnosis at the earliest possible moment. The sooner appropriate treatment is begun, the better are the chances for recovery. A false diagnosis may lead to operation when this is not necessary and may thus subject the patient to unwarranted dangers; or, on the other hand, it may lead us to refrain from radical measures of treatment where these are urgently needed. My purpose in this paper is to direct attention to the value of the microscope in aiding us in many doubtful cases to a correct diagnosis, especially in early stages of disease.

The first requisite is, of course, that the microscopical examination should be made by a competent pathologist. It has been said that as many different microscopical diagnoses of a specimen may be had as there are different microscopists who examine it. This is true only when examinations are made by incompetent persons. Much of the discredit which has been cast upon the value of microscopical diagnoses is due to the incompetence of those who make the microscopical examinations. An experienced microscopist may be unable to make a positive diagnosis from small fragments of tissue, particularly of uterine scrapings, but this he will state frankly. If the specimen permits a positive diagnosis he will not be in doubt, and reliance can be placed upon the conclusions of an experienced and skilful pathologist. It is not to be expected that most general practitioners or clinical specialists will have had the time, opportunity, and training to make their own microscopical diagnoses of specimens of tissue. In this case they should understand how to prepare the specimen for a micro-

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scopist and should send it to one upon whom reliance can be placed.

Technique.—Scrapings from the uterus and other pieces of tissue intended for microscopical diagnosis should be, *immediately after removal*, placed in strong alcohol (ninety-five per cent). Absolute alcohol is not necessary, but the alcohol obtained from the druggist should not be diluted with water. Specimens should not be placed in glycerin or in any of the ordinary antiseptic solutions. Scrapings from the uterus are so small that they require no further division, but pieces of tumor may be cut out so large that it is well to divide them. The specimens in general should not be more than one-half, at the most one inch in thickness, and preferably even smaller, when they are to be hardened in alcohol. Much larger pieces can be hardened in Zenker's or in Müller's fluid or in formalin. It is well to put a little absorbent cotton or blotting or filter paper at the bottom of the jar or bottle containing the alcohol, so that the under surface of the specimen shall not stick to the bottom of the bottle and so prevent the penetration of the alcohol in this surface. It is important to use a sufficient quantity of alcohol. There is no danger in an excess, but too small a quantity is often used. The quantity of alcohol should be many times, at least fifteen or twenty times, the volume of the specimen. For ordinary uterine scrapings two ounces of alcohol will generally suffice. The bottle should be tightly stoppered, and if sent to a microscopist it should be distinctly labelled with the name and address of the sender, so as to avoid possibility of confusion with other specimens which may be sent by others at the same time.

After twenty-four to forty-eight hours small pieces of tissue, such as uterine scrapings, are sufficiently hardened to be cut. If there is urgent haste as regards the diagnosis, the examination of hardened specimens can be made inside of twenty-four hours. The examination of fresh scrapings is of assistance if chorionic villi are suspected to be present, as their form and dendritic branching can be well made out in coarsely teased specimens; but these villi can also be well recognized on sections of hardened specimens.

Dr. Cullen[1] has devised a useful method for making quick examinations of fresh specimens. He throws the pieces of tis-

[1] Cullen: "A Rapid Method of Making Permanent Specimens from Frozen Sections by the Use of Formalin." Johns Hopkins Hospital Bulletin, April, 1895.

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sue for one or two hours into a ten per cent solution of formalin, and then cuts them with a freezing microtome, after which the sections can be stained and treated in the same way as sections of tissue hardened in alcohol. Another plan which he also uses is first to cut, by the freezing microtome, the fresh specimens and then harden the sections for five minutes in formalin. These methods, especially the former one, do away with many of the objections to ordinary fresh frozen sections.

Uterine scrapings, after hardening in alcohol, are then to be imbedded, preferably in celloidin. It is best to put a mass of the scrapings on the cork or block used for imbedding, and in clearing up the sections not to use oil of cloves or any oil which dissolves out the celloidin. Oil of origanum and oil of bergamot do not dissolve celloidin. In this way half a dozen or more sections of different fragments of the tissue removed by the curette will be held together by the celloidin and can be mounted together under the same cover glass, whereby the examination is much facilitated. The most useful stain for the ordinary examination of the tissues is hematoxylin with a counterstain with eosin.

NORMAL MUCOSA OF THE UTERUS.

It is important to become familiar with the normal microscopical structure of the mucous membrane of the different parts of the uterus and with the minor deviations from the normal structure. These deviations of moderate degree are so common as hardly to be pathological, and they do not indicate serious disease. Familiarity with the structure of the uterine mucosa at different parts of the uterus will enable the microscopist to determine approximately from what situation the scrapings under examination are obtained. It is likewise important to become acquainted with the changes in the structure of the uterine mucosa at different periods of life from infancy to old age, and with those associated with menstruation, pregnancy, and the puerperium.

A positive diagnosis based simply on the microscopical examination of uterine scrapings may be difficult and is sometimes impossible. This is mainly because the scrapings are often so small and unsatisfactory as not to present a good view of the condition present. It may happen that the scrapings are from healthy parts and do not come from a localized focus of disease which may be present in the fundus of the uterus. It is occasionally important for the microscopist to determine

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the condition of the muscular wall just beneath the mucosa, and usually the scrapings include only mucous membrane. But notwithstanding these difficulties, it is remarkable in how many cases a positive and correct diagnosis can be reached by the aid of the microscope.

We can divide the uterine mucosa into that of the body of the uterus, that of the supravaginal portion, and that of the vaginal portion of the cervix uteri.

The mucous membrane of the body is smooth and is covered with ciliated cylindrical epithelium. From the surface narrow, simple tubular glands, also lined with cylindrical epithelium, extend through the whole thickness of the mucous membrane down to the muscular coat. Bifurcation of the glands is not uncommon. These glands may be straight, but often they are more or less spiral in their course, and they may bend at their lower ends so as to run nearly parallel to the surface. Moderate dilatation of parts of these glands is so common as to be hardly beyond physiological limits. There may be a more or less festooned arrangement of the inner wall of the glands, as seen on transverse or oblique sections, and sometimes, especially toward the lower ends of the glands, there may be an involution of the wall into the lumen of the glands, so that on cross section an inner ring of epithelium lies within the outer ring of lining epithelium. These deviations are seen especially in certain cases of so-called chronic endometritis. It is important to know that we may have these irregularities in the shape and the size of the glands without their indicating serious disease.

An important point, as we shall see later, in the diagnosis of adeno-carcinoma of the body of the uterus, is down-growth of the glands into the muscular wall of the uterus, but there may be a certain degree of extension of the lower ends of the glands into the muscular wall without the existence of any disease. In fact, the lower ends of the glands are rarely at a uniform level, but long sections through the inner wall of the uterus show that many of them may dip down a certain distance into the muscle. These physiological down-growths of the glands are usually accompanied with the normal stroma of the mucous membrane. This extension of the glands into the muscular coat is most common in women who have borne children.

It is usually stated that the lining epithelium of the glands rests upon a basal membrane, but, if such a membrane exists, it is not readily demonstrable and does not appear upon sections prepared in the ordinary way.

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The stroma of the mucous membrane is made up almost entirely of cells with little basement substance. This scanty basement substance is finely fibrillated. The stroma cells are short fusiform, oval, round, or polyhedral cells with oval, vesicular nuclei, which stain less deeply than the nuclei of leucocytes or of lymphoid cells. The statement sometimes made that the stroma of the uterine mucosa is lymphoid tissue is an error. Lymphoid cells, either singly or in small clumps, however, occur in the stroma, and these can be readily distinguished from the predominant stroma cells by their small, round, deeply-staining nuclei and scanty, scarcely demonstrable protoplasm. In chronic inflammations and some other conditions these lymphoid cells are often much increased in number. They vary in number very much in the normal mucous membrane, being sometimes few and sometimes tolerably numerous. The capillaries, unless they are distended with blood, are not generally very apparent in alcohol-hardened specimens. They are, however, numerous, and are lined by endothelial cells with vesicular nuclei. There may be a few strands of smooth muscle extending from the myometrium into the mucous membrane, but with this exception and that of the muscle in the walls of the medium-sized arteries and veins, situated chiefly in the lower layers of the mucosa, this layer is devoid of muscle.

The mucous membrane rests directly on the muscular wall of the uterus without the intervention of any submucous coat such as generally is found beneath the mucous membranes of other organs. Unlike the mucous membrane of the cervix, that of the uterine body can be readily scraped away from the underlying muscular wall.

The inner surface of the mucous membrane of the body of the uterus is smooth. Slight elevations and depressions belong among those minor deviations of which I have spoken. Marked papillary or villous elevations of this surface are observed in some forms of chronic endometritis, as well as in tumors.

In the supravaginal portion the mucous membrane becomes less smooth and gradually assumes the plicated arrangement of the arbor vitæ of the cervix. The simple tubular glands of the body now become more irregular and branching, and thus pass over by transitional forms into the compound tubular or the racemose glands of the vaginal part of the cervix. The lining epithelium is high cylindrical.

The vaginal portion of the cervix on its outer surface is cov-

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ered with laminated flat epithelium. In the virgin this flat epithelium gives place to cylindrical epithelium at or near the external os, but in those who have borne children flat epithelium may sometimes extend one-third or one-half way up the cervical canal. There is considerable variation as to the height to which the flat epithelium may extend, and no definite rule as to this can be stated.

The glands of the cervix are entirely different from those of the body of the uterus, although, as already stated, they pass into each other by transitional forms. The cervical glands are mucus-secreting. They present a tubular part which ends in elongated or round acini. They may be classed among the simple racemose glands. The lumen of the gland is often distended with mucus, and regular cystic dilatations are common, constituting the so-called Nabothian follicles.

The stroma of the vaginal part of the cervix is rich in cells, but by no means so rich as that of the mucosa of the body of the uterus. The stroma cells are more elongated and spindle-shaped, and there is considerable fibrillated basement substance. Many of these cells are as long as smooth muscular fibres, and they may be such. The cervical mucosa is firmly connected with the underlying muscle, and bundles of smooth muscle pass up from the muscular wall into the mucous membrane and between the glands. The stroma cells are smaller and more numerous near the epithelial covering. Thick-walled arteries and veins are found in the cervical mucous membrane. Fibrous thickening of the intima of arteries and veins, which in other parts of the body would be evidence of chronic endarteritis or endophlebitis, is a normal condition in this situation after maturity. Accumulations of lymphoid cells are common just beneath the lining epithelium. The number, the size, and the shape of the cervical glands vary much even in healthy uteri.

We will now consider the more common pathological changes in the inner wall of the uterus, especially as they appear on scrapings.

ACUTE ENDOMETRITIS.

Acute endometritis is characterized in the same way as acute inflammation of other parts, by the presence of an inflammatory exudate. Unless we are able to demonstrate the presence of one or more of the inflammatory products, we are not justified in making the microscopical diagnosis of acute endometritis.

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These products are polymorphonuclear leucocytes, fibrin, and serum, accompanied with increased secretion of mucus. Red blood corpuscles, escaped by diapedesis or rhexis, may be present. The lighter grades of acute inflammation in so-called catarrhal endometritis may be so superficial that the exudation is almost wholly on the surface and there may be little to see on sections of the mucous membrane. Usually we find in the tissue some polymorphonuclear leucocytes, and these elements are our chief guide in diagnosing acute endometritis. They may be present in small number, without indicating actual inflammation, but when the mucous membrane is infiltrated to any marked extent with these leucocytes with their small, irregular, deeply staining polymorphous nuclei, there need be no hesitation in diagnosing acute inflammation. The leucocytes are found not only between the stroma cells, but also often within the glands and between the epithelial cells covering the surface.

The stroma of the mucosa, especially in its superficial layers, may present a wide-meshed appearance from inflammatory edema due to exudation of serum.

Fresh hemorrhages in the stroma and within the glands are common in acute inflammation, but we have to be on our guard not to mistake such hemorrhages as may readily be caused by the crushing and bruising action of the curette for hemorrhages resulting from a pathological process. Hematoidin pigment granules are indicative of old hemorrhages, and may sometimes be seen in chronic affections of the endometrium.

Fibrillated fibrin, independently of hemorrhage, is sometimes seen in the stroma of acutely inflamed uterine mucous membranes, and may also be present as a layer on the surface.

The stroma cells are often swollen and proliferated in acute inflammation. Lymphoid cells are present in increased number in many cases.

The surface epithelium is usually intact, beyond some leucocytic infiltration in the milder grades of acute endometritis; in more severe forms of inflammation it may be lost. Here, too, we must not mistake simple accidental mechanical removal of the epithelium by the handling and preparation of the specimen for a pathological loss of epithelium.

The glands may be dilated or otherwise irregular in shape, and their lining epithelium may be desquamated. Their lumina often contain leucocytes and red corpuscles.

In severe grades of endometritis there may be thrombi in the

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blood vessels and lymphatics, and areas of actual necrosis of tissue, characterized by loss of nuclear staining or by karyorhexis, may be present. Inflammatory changes may extend from the surface to a variable depth in the myometrium.

The great majority of cases of acute endometritis are due either to gonorrheal or to puerperal infection. Acute endometritis may occur, however, independently of these conditions. Such epithets as catarrhal, suppurative, interstitial, croupous, diphtheritic, septic, putrid, etc., are used to characterize various types of puerperal and other infectious endometritides.

CHRONIC ENDOMETRITIS.

A variety of anatomical changes as well as of clinical symptoms have been ascribed to chronic endometritis. Some of these anatomical changes have nothing to do with inflammation and are better described under other names than endometritis.

A common condition seen in scrapings is alteration in the size and shape of the glands. There may be an actual new growth of the uterine glands without the formation of a tumor, or the glands may be swollen and their inner surfaces very irregular and festooned. It is to be noted that with these glandular changes the epithelial lining of the glands remains a single layer of cells. These conditions are called glandular hyperplasia or glandular hypertrophy, or, by some writers, glandular endometritis.

In genuine chronic endometritis these changes in the glands are accompanied with alterations in the stroma. The stroma cells may become swollen, so as to appear like epithelioid cells in places. They proliferate by indirect cell division and thereby form genuine fibroblasts. The capillary endothelial cells may likewise proliferate and form new tissue. Partly by hypertrophy and hyperplasia of the glands, and partly by proliferative changes in the stroma, accompanied with hyperemia, the mucous membrane may become much swollen, sometimes seven to ten millimetres or more in thickness. This condition may be designated chronic proliferative or hypertrophic or hyperplastic endometritis.

This swollen condition may be accompanied or followed by atrophic changes, or the atrophic condition may occur without evidence of pre-existing hypertrophy of the mucous membrane. In this affection there is a transformation of the stroma into fibroid tissue containing spindle cells and fibrillated basement

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substance. In the areas of atrophy the glands are small or they may totally disappear. The blood vessels here present thickened walls. The mucous membrane may be atrophied in places, and in other places it may be thickened with hypertrophy and hyperplasia of glands and stroma. When the atrophy is diffuse, affecting large areas, the mucous membrane is thinned. The condition described constitutes chronic interstitial or atrophic endometritis and is analogous to chronic interstitial inflammation elsewhere. In some forms of chronic endometritis the surface is notably irregular, presenting papillary or villous outgrowths. This is the so-called fungous or papillary endometritis.

There is usually marked increase in the number of lymphoid cells in chronic endometritis, and we may have extensive areas of the mucosa converted into lymphoid tissue. There may be granulation tissue with newly formed capillaries present. There is often a thickening of the coats of the blood vessels, especially, as has already been noted, in the areas with fibroid transformation of the stroma.

It is only the interstitial changes in the endometrium, which have just been described, which merit the designation of chronic endometritis. These interstitial changes are usually combined with changes in the glands, but when the glandular changes occur alone, without alteration of the stroma, the condition does not warrant the name of endometritis, but is better described as glandular hyperplasia, glandular hypertrophy, glandular atrophy, etc.

The most important point for the pathologist to consider in these cases is the possibility of a malignant growth, as this is often suspected by the clinician as the result of his examination and of the clinical history. It is, therefore, important for the microscopist to become familiar with the various abnormalities of the glands and stroma of the mucous membrane of the uterus occurring in chronic endometritis and glandular hyperplasia. This familiarity can be gained only by experience and the opportunity of making frequent examinations of scrapings, and without such practical experience there is much danger of mistaking some of the alterations described for evidence of malignant disease. It is particularly in this class of cases that the pathologist, from the imperfection of the material, may be unable to express a positive opinion as to the existence of malignant disease.

There are often changes in the uterine mucosa associated

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with myoma. If the myoma is subperitoneal or in the outer layers of the uterus the mucous membrane need not be affected at all, but in submucous and interstitial myomata near the mucosa the mucous membrane is usually affected. Both hypertrophy and atrophy of the mucous membrane may be present. Pressure leads to atrophy of the mucosa, which may or may not be accompanied or preceded by hypertrophy. This is simply a pressure atrophy, such as would naturally be expected, and may lead to the reduction of the mucosa to scarcely more than a single layer of low epithelial cells with disappearance of the glands. While the mucosa over the submucous myomata may be atrophic, the protected parts between myomata are often the seat of glandular hypertrophy. The pressure of a myoma may cause marked distortion of the glands and may change their direction into one nearly parallel to the inner surface of the uterus.

"EROSION OF THE CERVIX."

"Erosion" of the cervix is not, as was once supposed, ulceration, but it is a peculiar alteration of the mucosa which may result from various causes. The surface of the "erosion" is covered by low or high cylindrical epithelium instead of by the stratified flat epithelium normally present over the vaginal surface of the cervix. This cylindrical epithelium is like that found in the cervical canal. Sometimes it appears to be derived by a down-growth of the cylindrical epithelium over the os externum, especially in cases of laceration of the cervix or of ectropium. Sometimes the appearances suggest a derivation from the cervical glands, as if such a gland had opened and spread itself out over a part of the cervix. Beneath the epithelium covering the surface of the erosion there is granulation tissue, and there may be here and in the margins of the erosion papillary outgrowths of this granulation tissue. This condition is called "papillary erosion." The epithelium in many cases tends to grow down into the subjacent tissue, forming atypical glandular growths. When new growths of glands in the subepithelial layers are numerous we have the so-called "glandular or follicular erosions." These various conditions are often combined, and they can hardly be considered to constitute sharply marked varieties of the disease.

Actual ulcerations of the cervix with defects in the epithelial and subjacent layers occur, but these are not to be con-

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founded with "erosions," although they may be associated with them.

"Erosion," especially when associated, as is often the case, with hypertrophy of the cervix, may be mistaken clinically for epithelioma, but here the microscopical examination is decisive in establishing the correct diagnosis.

PREGNANCY.

It is very important to become familiar with the structures which may appear in scrapings and which are indicative of existing or recent pregnancy. Such scrapings may unfortunately come, as the result of an error in diagnosis, from a uterus containing the developing ovum, or they may follow an abortion.

There are three structures which may be found in scrapings indicative of pregnancy. These are chorionic villi, decidual tissue, and the deeper or ampullar layer of mucosa of the pregnant or puerperal uterus.

Chorionic villi constitute positive proof of the presence of a fetus. The structure of these villi with their mucoid stroma and characteristic double layer of epithelium, the one fetal, the other the so-called syncytium, is so characteristic that only an inexperienced microscopist could mistake a section of a fetal villus for anything else. The syncytial cells may appear in the form of the so-called placental giant cells without the presence of a villus in the same section. Such cells should lead to the suspicion of pregnancy.

To an experienced observer the decidual cells are no less characteristic than the fetal villi. These decidual cells do not, however, prove that the fetus was developed in the uterus, as a decidua forms in the uterus whether the fetus be developed in its normal situation or be extrauterine. The decidual cells are developed from the stroma cells of the mucosa of the corpus uteri, but they differ very much from the latter cells. They are much larger and of an epithelioid type. They are round, oval, or polygonal in shape, with clear protoplasm, and contain large, vesicular, oval nuclei. They lie loosely together. It is the layers of the mucous membrane nearest the cavity of the uterus which produce the decidua, and here the glands are transformed so as to be no longer easily recognizable as glands.

The glands in the deeper layers of the mucosa—that is, the outer parts of the glands of the corpus uteri—do not participate directly in the formation of the placenta, but they are

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transformed into large, irregular, convoluted spaces lined with cylindrical epithelium. This layer with altered glands is the ampullar layer, and remains behind after separation of the placenta or decidua. Scrapings may be obtained from the uterus after all fetal and placental structures have been expelled, and unless one is familiar with the great irregularities in these glands of the ampullar layer, he may readily mistake their condition for one indicative of adeno-carcinoma. It is from these remnants of glands and the intervening stroma that the mucous membrane of the uterus is reproduced.

MEMBRANOUS DYSMENORRHEA.

Sometimes more or less complete membranous casts are expelled during menstruation. The structure of these casts varies. They may be the inner layers of the mucous membrane, which separate like the decidua of pregnancy. In fact, the structure of these casts may be that of typical decidua. Many of these cases are early abortions, and some writers think that all have this origin; but in some instances where there is an approach to decidual structure, as shown by hypertrophy of the stroma cells and alterations in the glands, pregnancy can be excluded. These are the so-called menstrual deciduas, and they suggest that preceding and during the early part of menstruation the mucous membrane has undergone changes preparatory to the reception of the ovum, but, this not being fructified, the menstrual decidua is expelled in a manner similar to the true decidua of pregnancy.

Membranous casts from the uterus are not always composed of tissue, but they may be a mixture of fibrin, blood, mucus, and desquamated epithelial cells.

BENIGN ADENOMA.

It is not always easy to separate sharply the diffuse and circumscribed glandular hyperplasias and hypertrophies occurring in forms of so-called glandular endometritis from actual tumor formations. The so-called glandular or mucous polyp is a benign adenoma. Here we see on sections a reproduction of the normal, regular uterine glands and of the normal stroma, the whole growth being covered with cylindrical epithelium. We also have in the cervix new growths of the cervical glands in the form of benign tumors. The chief indication of the benign nature of these growths is the preservation of the regular, typical structure of the normal glands and stroma, and the

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absence of any tendency to invade the muscular wall of the uterus beyond physiological limits. These benign adenomata may be pedunculated or sessile tumors.

MALIGNANT ADENOMA OR ADENO-CARCINOMA.

The common type of cancer of the body of the uterus is adeno-carcinoma. It was formerly thought that cancer of the uterine body was a rare disease, but we now know that it is not at all uncommon.

On account of the concealed situation of cancer of the body of the uterus, it is by no means easy to make a positive diagnosis of this disease in its early stages by clinical examination alone, and, nevertheless, there is no disease of the uterus more important to diagnose in an early stage. The diagnosis of cancer of the body of the uterus is an indication for hysterectomy, and the results of this operation are most favorable when the operation is performed before the cancer has invaded extensively the wall of the uterus. There is no condition in which the value of the microscopical examination of uterine scrapings is so clearly apparent as in cases of cancer of the uterine body. The report of the microscopist often determines whether or not the patient shall be subjected to the operation of hysterectomy, and it is evident that in these cases a great responsibility rests upon him.

In the great majority of cases in which cancer of the body of the uterus exists a positive diagnosis can be made by microscopical examination of the scrapings.

The decisive point in the microscopical diagnosis of cancer of the body of the uterus is the recognition of a lawless, invasive growth of the epithelium. This lawless growth may be characterized by the formation of alveolar spaces filled with epithelial cells. Here the type corresponds to ordinary carcinoma in other situations, and the diagnosis is made without difficulty. Oftener, however, the lawless growth is in the form of tubular glands which bear more or less resemblance to the utricular glands. This type is that of a malignant adenoma, but it is not useful or practicable to attempt to separate sharply the malignant growths with alveoli filled with cylindrical epithelium and the malignant growths with irregular tubules lined or partly filled with epithelial cells. In fact, the two types are usually combined, and all transitions exist between them. They are both equally malignant, both present the same clinical symptoms, and both equally deserve the name of

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cancer. The terms cancer or carcinoma, malignant or destructive adenoma, adeno-carcinoma, and cylindrical-celled epithelioma of the body of the uterus, are, for all practical purposes, synonymous terms, although it is not to be understood that there are not considerable variations in the exact histological structure of different cancers of the corpus uteri.

Probably the most difficult problem connected with the microscopical diagnosis of uterine scrapings is to determine whether or not certain abnormalities in the uterine glands seen on sections are indicative of malignant adenoma or not. If there is no other clue to the diagnosis than the mere presence of deviations in the number, size, and shape of these glands, it is unsafe to venture a positive diagnosis in most cases. Fortunately in most cases there are other guides to the diagnosis. The most important of these are the determination of an invasive growth into the muscle of the uterus and the recognition of more or less complete and typical cancerous alveoli. Sometimes, without these guides, the epithelial growth is evidently so lawless, the glands are so irregular and beset with involutions and outgrowths, and the epithelial lining so actively proliferating and—a point to be especially emphasized—in several layers, that there can be no doubt as to the malignant character of the growths; but it is always most satisfactory to base the diagnosis upon the presence of alveolar spaces filled with epithelium and upon the detection of the epithelial growth in the muscular layers. Attention should be paid to the stroma, for in cancer this generally differs decidedly from the normal stroma. The cells are more polymorphous, and there is small round-celled infiltration. It is important to bear in mind, as has already been stated, that a certain degree of down-growth of the uterine glands into the muscle is physiological; but the knowledge of this fact is generally sufficient to enable the observer not to mistake this for the invasive growth of a cancer with its stroma differing from the normal stroma. There are, however, rare cases of adeno-carcinoma in which the tubules lined by epithelium do not deviate in a striking manner from the normal tubules. Almost the sole evidence of malignancy in these cases is the invasion by the newly formed tubules in a lawless manner of the muscular coat of the uterus. Opportunities are occasionally offered to examine specimens of cancer before there has been any invasion of the muscular wall. Indeed, some forms of adeno-carcinoma tend to spread out superficially rather than to extend in depth.

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Scrapings from cancer of the body of the uterus are usually more abundant and larger than ordinary scrapings and are much more likely to include portions of the muscular wall, so that the diagnosis is thereby much facilitated. It is, however, unsafe to base a diagnosis of cancer merely upon the gross appearance of the scrapings.

A comparatively rare disease is adeno-carcinoma originating in the mucus-secreting cervical glands. Here the type of the new growth corresponds in a general way to that of the compound tubular or racemose glands of the vaginal part of the cervix. The diagnostic points are essentially the same as in adeno-carcinoma originating in the glands of the corpus uteri.

EPITHELIOMA OF THE CERVIX.

The ordinary type of cancer of the cervix is flat-celled epithelioma. This is the most common form of uterine cancer, although, as already mentioned, cancer of the body is far more common than was supposed to be the case a few years ago. The cervix being exposed to view, the diagnosis of cancer in this situation can often be made by clinical examination; still there are cases in which the diagnosis is uncertain on clinical grounds, and in these cases it is important to submit an excised piece of the cervix to microscopical examination. Such examination will always establish the diagnosis if the excised piece comes from the new growth. Alveoli filled with flat epithelial cells, often containing also the so-called cancroid pearls, are the diagnostic features. The only possibility of error is the occasional occurrence, especially in cases of "erosion." of atypical down growths of interpapillary processes of epithelium; but with due care these need not be mistaken for genuine epitheliomatous growths.

SARCOMA.

Sarcoma originating in the uterine mucosa is far less common than carcinoma. All types of sarcoma, the round-celled, the spindle-celled, the giant celled, and the mixed-celled, may occur in this situation. All of these may be diagnosed in scrapings, the structure not differing essentially from sarcoma occurring in other parts of the body. Angiosarcoma is a rare form, which may develop primarily in the uterus. All of these growths are, of course, malignant, although in varying degree, and invade surrounding tissues and give rise to metastases.

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DECIDUOMA.

An interesting type of malignant tumor of the uterus has been described during the last few years under the name of deciduoma malignum.[1] This has been regarded as a form of sarcoma developing from the decidual cells, but there is evidence that these tumors may also originate from the syncytial cells of the placenta. They develop, generally rapidly after pregnancy. and are very malignant. Metastases occur in various organs. These tumors are composed almost wholly of large, irregular cells of an epithelial or epithelioid type with little or no stroma. They are very invasive and may penetrate into the blood vessels, so that hemorrhages are abundant in the tumors. Cells with multiple nuclei and large cells with vesicular nuclei, actively proliferating, are the types which compose the tumor. If the view that the tumor springs from syncytium is correct, it is more appropriately classified histogenetically as a cancer than a sarcoma, although a distinct alveolar structure is not apparent.

TUBERCULOSIS.

Tuberculosis of the female genital tract is more common than has been generally supposed. I have repeatedly seen in the Pathological Laboratory of the Johns Hopkins Hospital, where the systematic examination of uterine scrapings is carried out, the diagnosis of tuberculosis of the uterine mucosa made where there had been no suspicion of this affection from the clinical history and examination. The diagnosis was made by the detection of typical giant-celled miliary tubercles in sections of the scrapings Tubercle bacilli were demonstrated in these tubercles.

Advanced tuberculosis of the uterine mucosa is characterized by the transformation of a large part of the mucosa into conglomerate tubercles or diffuse tuberculous tissue with caseation. The caseous material forms a coating on the inner wall of the uterus. Tubercle bacilli can be demonstrated, but the histological structure alone is sufficiently characteristic to warrant a positive diagnosis.

MYOMA.

When a myoma (commonly but incorrectly called fibroid tumor) is situated on the inner surface of the uterus, it may possibly be present in scrapings. The so-called fibroid polyp

[1] J. Whitridge Williams: "Deciduoma Malignum" The Johns Hopkins Hospital Reports, vol. iv., 1895, p. 461.

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is a submucous myoma growing in the form of a polypus. Sloughing myomata of the uterus may be accompanied with such severe symptoms as to give rise to the suspicion of cancer. The diagnosis of myoma, if removed partly in scrapings or if excised in part for diagnosis, is not difficult. The sections show interlacing bundles of smooth muscular fibres. The sloughing surface of a myoma is composed of necrotic muscular tissue, often infiltrated with blood, and it does not assume a differential nuclear stain. Mention has already been made of the changes in the mucosa which may accompany myoma. J. Whitridge Williams[1] has described a sarcomatous transformation of muscle cells occasionally occurring in uterine myomata.

ADENOMYOMA.

An interesting and special form of tumor is uterine adenomyoma, concerning the nature of which important studies have been made within recent years by Von Recklinghausen[2] and by Cullen.[3] There are two varieties of these adenomyomata, in one of which the glands spring from those of the endometrium, and in the other they are derived from remnants of the Wolffian body.

The pathological conditions described in this paper are the most common and important ones observed in uterine scrapings, although they do not by any means exhaust all of the possibilities. My purpose in this paper has not been to furnish an exhaustive description of them, but rather to awaken interest in a means of diagnosis which I believe to be of great practical importance. It is not contended that the microscopical examination will always lead to a positive diagnosis, but it will do so in a large proportion of cases in which the clinical examination leads to doubtful conclusions. Of course the microscopical examination is to be regarded as only one method of diagnosis, and is to be supplemented by every other diagnostic procedure at our disposal.

I wish to express my thanks to Dr. Cullen for his instruction and to Prof. Welch for suggestions in the preparation of this paper.

[1] J. Whitridge Williams: "Beiträge zur Histologie und Histogenese des Uterus-Sarcoms." Zeitschr. f. Heilkunde, Bd. xv., p. 141, 1894.

[2] Von Recklinghausen: "Die Adenomyome und Cystadenome der Uterus- und Tubenwandung." Berlin, 1896.

[3] Cullen: The Johns Hopkins Hospital Reports, vol. vi.. 1896.

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THE HAND BASINS IN USE IN SURGICAL OPERATING ROOMS. [1]

BY

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(With four illustrations.)

THE effective washing of the hands is perhaps the most important single step in the entire series of the active antiseptic preparations for a surgical operation. In order that the hands may be properly washed a number of conditions are essential.

In the first place, a good brush is needed, of vegetable fibre, which will stand repeated sterilizations, and is large enough to afford a grasp for the entire hand (13 by 5 centimetres), and stiff enough when wet to penetrate easily the subungual spaces, yet not so stiff as to tear the skin.

In the second place, only a daily practice continued for some weeks teaches a man how to use his brush most effectively, in combination with soap and water, in removing all the detachable débris from the hands, fingers, and nail spaces. And yet, strange to say, most men think they know how to wash their hands skilfully at the very outset without this practice.

It is important, for this reason, that all young assistants who are not thus trained should wear rubber gloves during their early apprenticeship, or the cotton-thread gloves which I have used in my clinic for the past three years.

In the third place, as shown by Zweifel and abundantly demonstrated by my own personal experience, hands which have been but recently contaminated by contact with any acute septic process cannot be sterilized by any known procedure whatever and can only be made clean by repeated washings and the lapse of time.

A surgeon who is actively prosecuting his work should never examine a puerperal septic patient unless he puts on a rubber glove to do it; if he does make such an examination without a glove it must be after his work hours are over, and he should then drop all surgical work for a period of not less than three days.

[1] An address delivered before the Baltimore Gynecological and Obstetrical Society, January 11, 1898.

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After unexpectedly encountering a septic case or opening a pelvic abscess in the course of a series of operations, the hands must be regarded as septic and all further work for that day must be postponed. I would not allow a surgeon to operate upon one of my near relatives under such circumstances, and I cannot make any different rule for my patients, whoever they are.

Fourthly, the water in which the hands are washed must be free from pyogenic organisms. Fortunately the ordinary tap, well, and spring water generally answers this requirement. In

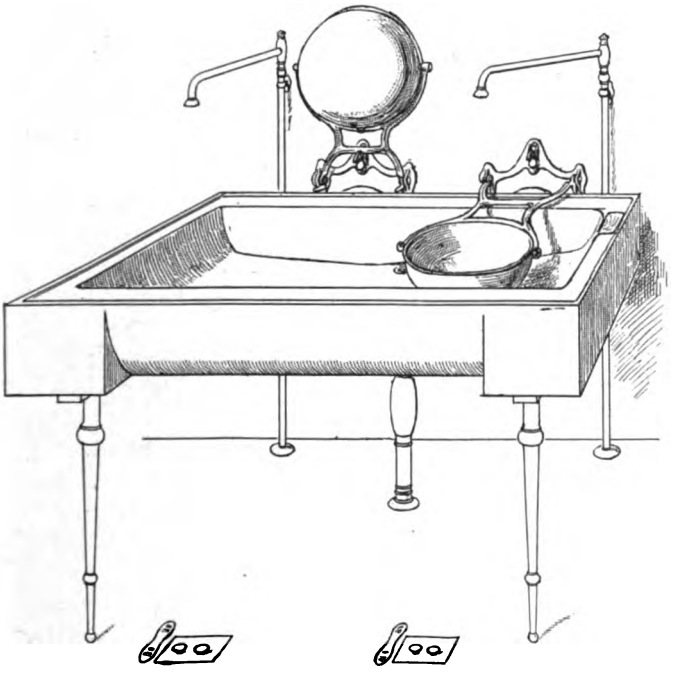


FIG. 1.—Arrangement for wash basins in private hospitals. The basins are placed over a large porcelain sink and filled with water by means of Robb's pedals. Each basin swings in its frame, and is emptied into the sink by a light touch on the rim. When out of use the basin and frame are hooked up against the marble slab on the wall, as shown on the left.

every clinic, however, bacteriological examinations of the tap water should be made at various times of the year to test its quality.

The water from the hot faucet is, as a rule, notably freer than the cold, and in some cases, if the temperature is high, it is even sterile.

Fifthly, I wish to dwell especially upon several important

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points relating to the manner of washing the hands, and the hand basins.

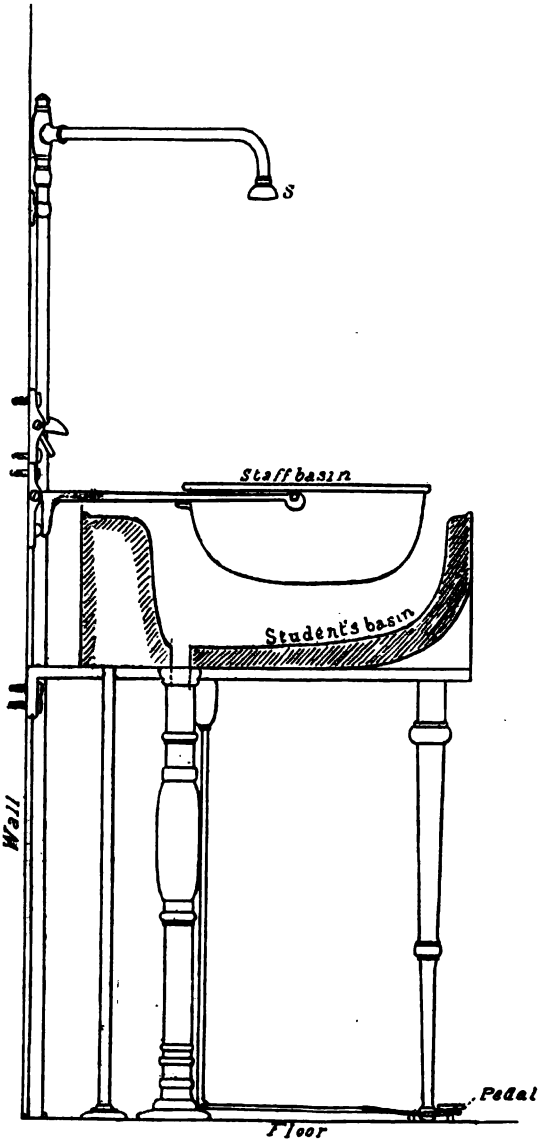


FIG. 2.—The arrangement of the hand basins at the Johns Hopkins Hospital. The metal basin used by the operator and house staff is set in a frame which can be elevated as in Fig. 1. The basin is pivoted and easily lifted off from the frame and put in the steam sterilizer before using. Beneath this is a second basin, a porcelain fixture, which is used exclusively by the students before making vaginal examinations, etc. The spray (*s*) is adopted from the Royal Victoria Hospital operating room.

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To wash the hands well one must give the act of washing an undivided attention; if the operator is distracted either by those about him or by any personal discomforts, he will not do the washing as well as if his thoughts were concentrated on the act. For this reason conversation, except of the briefest sort, should be omitted, and the operator or assistants should sit on a stool in a comfortable position, gently inclined toward the basin. By doing this he will avoid the wearisome stooping



FIG. 3.—The surgeon sitting with the body inclined in an easy posture while washing the hands, instead of standing bent over and tiring the back and exhausting nerve force, and so both tending to shorten the work and render it less perfect.

posture, often painful to the back and uselessly exhausting nerve force. Sit down and wash in comfort for five or for ten minutes, according to the condition of the hands and according to the experience of the man (see Fig. 3).

It needs no demonstration to show that the hands are more

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thoroughly and quickly cleansed in a streng alkaline soapy solution changed from time to time, than under running water which immediately removes all the soap and calls for its incessant reapplication.

To this end basins are necessary; but the fixtures in ordinary use are utterly unfit for the service and ought to be discarded, for they lodge the filth and grease of vaseline contaminated by

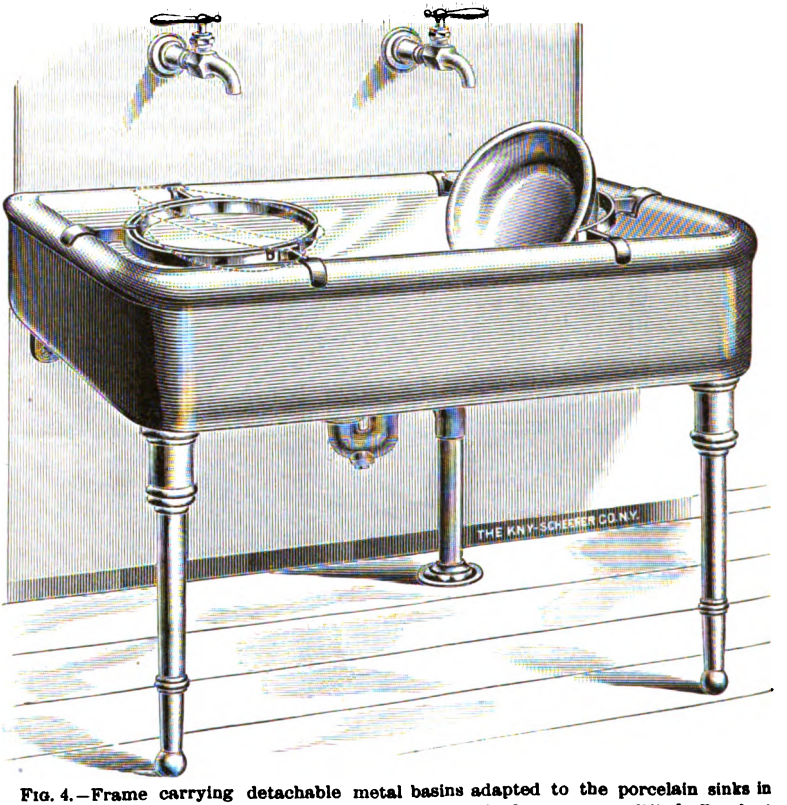


FIG. 4.—Frame carrying detachable metal basins adapted to the porcelain sinks in common use in operating rooms. After the operation the frame may be lifted off and set aside.

various examinations, and cannot be sterilized by any known method. Not infrequently they are cracked, and then the condition becomes worse than ever. The portable basins, taken from house to house, are far safer than the fixtures of most operating rooms.

To obviate these difficulties I have devised several forms of detachable basins, of pure nickel, German silver, or copper nickel-plated, hung under the water tap on a frame from which

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they can be easily lifted and put in the steam sterilizer together with the dressings, or boiled in water, and so effectively sterilized (see Figs. 1 and 2).

In my private hospital these basins stand under mixing spigots supplying hot and cold water, and when in use they are easily filled by means of the foot taps invented by Dr. H. Robb and first used in my private hospital and now in use the world over.

After the preliminary scrubbing a little touch tilts the basin, which is pivoted beyond its centre, and spills out the water into the large porcelain sink beneath it. When out of use it is swung up against the wall and held there by a catch.

After and before each operation the basin is sterilized in the steam sterilizer, so that it is impossible for any lingering contamination to infect the hands in a manner perfectly possible with the ordinary basins. At the Johns Hopkins Hospital I have a different device, adapted to the two classes of individuals liable to use the basins—the resident staff and myself on the one hand, and the medical students on the other (see Fig. 2).

Here each removable sterilized basin overhangs an ordinary large oval porcelain basin. The upper basins are used by the house staff and when out of use stand up against the wall. The students use the lower basins exclusively, and so the added risk of washing in common with a set of men whose movements we do not at all times control is avoided.

The basin should be not less than 30 by 30 centimetres in diameter. The advantage of solid metal over plated or coated basins is that the former do not chip or scale off from the difference in the expansion of the two materials when heated in the sterilization.

Messrs. Kny, Scheerer & Co. have constructed, according to plans furnished, a very satisfactory frame carrying pure nickel basins, tilting and removable, which fits over the porcelain sinks commonly found in all operating rooms. When the sink is in use the frame, together with the basins, is lifted off and set aside.

I have just received from Dr. F. F. Simpson, of Pittsburg, the photographs of a simple but beautiful apparatus, consisting of a ring carrying a basin, connected by means of a metal rod with a pedal, by means of which the basin is emptied without touching it with the hands.

I sincerely trust it will not be long before every surgical clinic in our land will discard fixed glass and porcelain basins and substitute in their place metal basins which can be removed and sterilized.

1418 Eutaw Place.

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INFANT MORTALITY AND INFANT FEEDING.[1]

BY
EDWARD HAMILTON, M.D.,
Milwaukee, Wis.

THE annual report of the Health Department of this city for the year 1896 publishes the death rate of fourteen of the principal cities of the United States and twenty-eight foreign cities, and ranks them according to their mortality. Milwaukee stands fourth on this list, with only 15 per thousand. This report also shows the total number of deaths from all causes to be 3,904, and of this number 1,297, or 33.2 per cent, occurred in children under 1 year; 1,791, or 45.8 per cent. in children under 2 years of age. The total number of births for the year was 7,855. Thus one child out of every seven died before the end of its first year.

Holt, in his "Diseases of Infancy and Childhood," states that New York City (which comes thirtieth on this list which I have mentioned, with an annual death rate of 21.4 per thousand) had for the years 1890, 1891, and 1892 an infant mortality of 26 per cent of the total mortality, over one-quarter of the deaths from all causes occurring during the first year of life and over one-third in the first two years; while our city shows that over one-third of all the deaths occur during the first year and nearly one-half during the first two years.

Thus Milwaukee, one of the healthiest cities in the world, with hardly any hot summer weather, has an infant mortality far in excess of New York, whose death rate from all causes is 6.4 per cent higher. Is not this infant mortality excessive? What is the cause, and is it not to some extent preventable? The fact that the infant mortality of New York City is over 7 per cent lower than in Milwaukee proves that it can be reduced here. The cause is principally nutritive, and consequently to a large extent preventable.

While many of these deaths are caused by want, neglect, overcrowding, and bad hygienic surroundings, the vast majority are due to:

1. Maternal feeding badly managed, which soon leads to substitute feeding.

[1] Read before the Milwaukee Medical Society, November 9, 1897.

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2. Substitute feeding ignorantly practised.
3. Impure milk and prepared foods.

Maternal feeding is so far superior to our best known methods of substitute feeding that it should be our constant endeavor to have every mother nurse her infant for the first nine months at least. If she is not willing to do this, then for six, four, two, or even one month, for every day the child is nursed adds so much to its chances of existence. This should be impressed upon the mother, and we should secure her hearty cooperation in carrying out all the details of a successful lactation. The majority of women can nurse their infants if their lactations are properly managed, especially the first. When a woman places herself under our direction for her delivery, the breasts and nipples should be as much an object of our attention as the heart or the urine. The nipples should be hardened by the frequent application of cold water during the latter months of gestation, and, if they are deformed in any way, should receive proper treatment. After labor they should be washed and dried after each nursing. Attention to these simple measures will prevent many cases of fissured nipples and mastitis—both a frequent cause why lactation has to be suspended. The mammary gland is not constant in its secretion either as to quantity or quality. It is an automatic, self-regulating piece of mechanism under the control of the sympathetic nervous system, and consequently subject to many influences, such as grief, fright, worry, digestive troubles, etc. Its secretion can also be affected by the intervals of nursing, diet, sleep, and exercise; and, taking advantage of this knowledge, we have the secret of successful maternal feeding, which is to so regulate the elements of the food (fats, sugar, proteids, and water) that the infant is enabled to digest and assimilate them.

Too close intervals of nursing make a richer milk by increasing the solids in proportion to the water; too long intervals decrease the solids in proportion to the water and give a more dilute milk; while irregular intervals change the milk both as to its composition and quantity, and, if persisted in, lead to such deterioration that it is no longer fit for the infant to subsist upon. This, in my experience, is one of the most frequent causes of the failure of the maternal milk supply and the recourse to artificial feeding. The mother allows the infant to sleep with her and nurse whenever it cries; it soon learns to nurse all night and sleep all day. Whenever it cries it must be hungry and must be fed, it makes no difference whether it be crying

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from hunger, colic, or a stray pin. This is the history in many cases, and by the time the physician is called the milk is often gone beyond recall, the baby not thriving, and the mother a wreck from worry and loss of sleep.

The mother's diet greatly affects the proteids, fats, and water of the milk, but the sugar to a very small extent. Nitrogenous food increases both the fats and proteids and makes a richer milk. Vegetable diet diminishes both the fats and proteids and makes a poorer milk. Starvation or poor diet diminishes both the fats and proteids. All fluids increase the quantity of milk. Alcoholic extracts of malt increase the quantity of milk, also the fats. Exercise decreases the proportions of proteids, and to some extent the fats.

When the breast milk does not agree with an infant, it is expensive and frequently impossible to have an analysis made to find out which is the element causing the trouble, but by careful clinical observation we can usually determine whether it is the fats or proteids, and these are generally the elements at fault. For instance, an excess of fat is shown by vomiting some time after feeding, and fatty diarrhea, while too little fat is shown by constipation and clay-colored stools.

When the proteids are in excess we usually have colic and curds in the stools, which are increased in frequency. When too low, which is not frequently the case, the infant ceases to thrive and cries incessantly from hunger. Thus, by the proper management of lactation, we can save many babies from the bottle and the grave.

Substitute feeding ignorantly practised is the fault at whose door lie most of the deaths reported as inanition marasmus and malnutrition.

I venture to state that over half the time when lactation is given up and substitute feeding practised it is not done with the consent or by the advice of a physician. And is it to be wondered at, when, of the 7,855 births occurring in the city last year, only 1,410 were attended by physicians, the remaining 6,445 being delivered by midwives, the most densely ignorant and incapable class of people into whose hands a poor mother and baby could fall? And their teaching and advice no doubt help along the procession with the white horses and hearse.

Many mothers think they are the proper judges of the time to suspend lactation and also of the kind of food that will agree with their infants. Frequently their friends decide for them whether they shall try first Mellin's or Nestlé's food, or any one of the many other so-called infant foods.

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Is not this artificial feeding ignorantly practised?

When it becomes necessary to use substitute food it should be done only under the advice of the family physician. The question then comes up, Upon what shall we feed the baby when maternal feeding is no longer possible?

For more than thirty years Jacobi, the father of pediatrics, has preached to the profession modified diluted cow's milk as a substitute for breast milk, but it is to the untiring work and acute clinical observation of Rotch of Boston, and Holt of New York, that we owe thanks for the systematic working out of the problem of artificial feeding. This method is so simple, cheap, and yet exact and scientific that the great wonder is that it had not been thought out and put into practice long ago.

Their method is simply to so change the elements (fats, sugar, and proteids) of cow's milk as to render it as near mother's milk as possible. Not only this, but the elements can be increased or reduced to suit the age and digestion of any child.

The preparation of this food is so cheap that it is within the means of the very poorest—one quart of milk will make a sufficient quantity to last for twenty-four hours; its preparation is so simple that any woman of ordinary intelligence can make it; and its exactness as to the elements depends only upon the stability of our milk or cream supply. It is scientific because its principles are rational and based upon facts, and not guesswork and empiricism as infant food heretofore has been. Any one interested in the subject of infant feeding will find in the works of Rotch and Holt lately published detailed description of the method. My experience with this food has been most gratifying, and I feel sure that any one who will study and put into practice this method will get such brilliant results that he will speedily be a convert to modified milk.

Impure Milk and Prepared Foods.—The health officer's report shows that since the milk supply of the city has been investigated and the milk ordinances more rigidly enforced there has been a drop in the death rate of children under 2 years of 5.3 per cent. This mortality could be still further reduced by a more thorough inspection and supervision of the cows, dairies, dairymen, milk cans, milk depots, and in fact everything connected with the milk supply, and thus in a great measure prevent adulteration and infection. In the East much good work has been done by means of milk laboratories and certified milk.

As regards patent and proprietary foods, they, like patent and proprietary medicines, are made and placed upon the mar-

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ket to sell, and their number is evidence that there is money in the business. These foods have had their day. They were the fad and the fashion, and have not only helped to swell the death rate, but have to answer for many cases of scurvy and rickets, and started many children in life handicapped by a weak stomach and poor digestion, who easily fall prey to any of the diseases of childhood where a healthy child would have recovered.

197 FARWELL AVENUE.

INTRAUTERINE MEDICATION. [1]

BY

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I KNOW full well that the time when a paper on "intrauterine medication" would arouse any special interest is past about twenty-five years or more, yet I venture to suggest that there is still some good to be accomplished in that line, hence this paper. Endometrial medication, like many other good things, was abused and hence ill results obtained. Modern surgical gynecology disdains such trivial, uncertain methods. A hysterectomy, or at least a curetting, is the least to be spoken of for diseases of the endometrium. Although we never hear in print of a modern gynecologist making a uterine application, do any of you doubt that every individual of our clan makes daily use of this method of treatment?

Many years ago I was convinced that the routine treatment of endometritis as then practised was irrational. I felt that there was a time during the intermenstrual period when it was irrational to make applications. This was for some days just before the menstrual flow. At this time the endometrium is thickened and it would take a very strong escharotic to reach the deeper layers. If we did this we would seriously interfere with the menstrual flow, even if we did not fear the presence of the dead tissue left after the escharotic. If we waited until after the flow had ceased we found much of the diseased endometrium softened down and floated away. We can now get down nearer to the base of the endometrium and do some good with our medication. I will just here state the kind of cases

[1] Read before the St. Louis Obstetrical and Gynecological Society, October 21, 1897.

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in which I use endometrial application: first, those in which there is only a slight amount of endometritis; second, those bad cases in which it is impossible for one to dilate and curette.

Every physician must have patients who will not or cannot submit to an operation. These cases we *can* do something for, and we *should* do it. I have had bad cases of granular endometritis, with a large cavity and sensitive body, which improved wonderfully under office treatment with free drainage.

There is a large class of cases which might come under either one of the above classes and which are sometimes cured by intrauterine medication, even without curetting. These are those cases of tubal distension which are due to closure of the tube through swelling of the endometrium.

Some years ago when I read a paper before the American Association of Obstetricians and Gynecologists, advocating curetting and packing of the uterus for the cure of some cases of hydro- or pyosalpinx, there were some very uncomplimentary remarks made by a prominent member which were undoubtedly intended for me. At present every now and then I see an article, showing that some agree with me now. There are none so blind as those who will not see.

I do not want to be understood as advocating intrauterine medication in all cases of pyosalpinx—far from it. Neither would I advocate dilating and curetting the uterus in all such cases. There are some cases so bad that I think it would be the height of foolishness to advocate any such procedure. In these cases the sooner the tubes are removed per vaginam or per abdomen the better for the patient. The cases where I do advocate it are those where there is no matting together of all the surrounding tissues, where there is little or no peritonitis, no outside abscess. In these cases you can feel the tube distended, and feel certain that if that is evacuated and kept empty the patient will do well. I have seen many of these cases get well even without curetting. We ought to expect it, too, for we see it occurring in general practice even when Nature is left alone to open the tube. I have said above that I was dissatisfied with the old practice of treating the endometrium, and I will say here that I was also dissatisfied with the appliances for making the applications.

Years ago, and even now, the applicator wrapped with cotton was used. Of course most of the application was squeezed off, and perhaps a good application made to the cervical canal, where you did not want it, but very little to the endometrium, the objective point. This crude method I did not like. I tried

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a syringe with a long silver nozzle, on which cotton was wrapped. This I did not like for several reasons—one, sufficient I think, that it was very dangerous. An applicator which had a tube over the cotton, which tube was to be withdrawn when the applicator reached the fundus, was tried. This was fair, but it could not apply the medicine uniformly, and it caused much pain from its introduction. I tried gelatin bougies. These caused violent colic, and in some cases even fever. When this occurred I felt helpless, as I knew no way to get them out without chloroforming the patient. These gelatin bougies swell up but do not dissolve readily.

At last I adopted the old-fashioned slippery-elm tent. This I sterilized in alcohol containing 1 : 4000 bichloride of mercury. I trimmed these tents to any size I wanted, let them dry a few minutes, and dipped the end into any solution I desired. After a few minutes this soaked into the bark. I now broke the tent in many places, if I had not done so previously; this was to make it limber. After cleansing the cervix the tent was inserted and a pledget of cotton placed against the cervix in order to keep in the tent. Both the tent and the cotton should be attached to a short string which hangs out of the vulva, by which it may be withdrawn at any time. If we will consider the mode of action of these tents, we will readily understand why we should get a better result than from the applicator. You all know that an elm tent will give off a slimy fluid when exposed to moisture. In this stringy mass is the application, which should cover every particle of endometrium. In this way we can get a thorough application, and keep this up for as long a time as we leave the tent in. This is not all. When we withdraw the swollen tent, of course all the contents of the uterus follow it out through the dilated cervical canal. If the tent is dipped for a moment into water or glycerin just before using, there is no pain on introduction. In cases where the sensitiveness is so great that it is impossible to make applications on cotton, you will find that you can do so with a small tent very readily. The tent can be made very small, so as to carry only a few drops. When we do have pain in using these tents, it is, I believe, mostly due to the tent being too large and dilating the cervical canal too freely. If the tent is so long as to press on the fundus we may have nausea.

I have found that it is best to use a medicament not so strong as is usually used. Dilute the carbolized iodine to one-fourth; the same with carbolic acid. Tincture of iodine does not need it. This is what we should expect after taking into considera-

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tion the length of time the application lasts and the thoroughness of the application.

I have not determined how long to leave these tents in. Generally I tell them to take them out in five or six hours, sometimes in two hours. I often tell them to remove the tent when it begins to pain, if it does so. I had one patient leave a tent in during three days of her monthly flow. No trouble resulted. This was used on account of a stenosis of the cervical canal. Her flow was almost without pain and much freer than usual. I have used these tents, without medicament other than the bichloride, for stenosis and sterility. The results have been wonderfully good in some cases.

This method of making applications I have used exclusively for more than two years. I find that I get far better results in very much shorter time than formerly when using cotton. I begin to treat a case about three or four days after her period has ceased, and continue about two weeks, then cease until after the next period. In regard to the frequency of application, the character of the application will determine this. A strong cauterant application should not be repeated until the portion destroyed has been cast off, probably six or seven days. In the meantime we should endeavor to prevent septic decomposition of this portion destroyed, and should favor its exit by using tents with a mild antiseptic lotion, say every other day. If you will try this method of treatment I feel certain that you will be pleased with it.

There is another way of treating diseased conditions of the endometrium which is more ideal than local applications, and this is by free drainage. We always secure this, after dilating and curetting, by means of gauze. We have never been able to secure it well in any other way. Stiff stem pessaries will drain, but there are many obvious objections to these, with which you are all familiar. There was a device gotten up by Outerbridge which consisted of two loops of silver wire, flattened and introduced into the canal. The inner ends were bent outward somewhat, in order to hold them in. The four wires were expected to lie together and form a channel for the discharges. This, I have no doubt, often occurred, but more often the wires became separated, and then each one sank into the mucous membrane and was buried, hence there was no channel. Some years ago I tried to obviate this by using loops of seven or eight strands of silkworm gut with a button of gutta-percha at one end. The loops were introduced, and by their natural tendency to separate, greatest at the loop, they

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would remain in the canal. Of course the button resting on the posterior wall of the vagina would help hold them in. There being fourteen to sixteen or more separate strands, and silkworm gut not being so stiff as wire, I expected to get good drainage. They certainly served their purpose well and enabled me to drain many cases of acutely flexed uteri which I could not have treated as well in any other way. It makes no difference how sharp the flexion, if there are a number of strands of silkworm gut in the canal, fluids will come through. I found that occasionally this loop would cause pain from lateral pressure at the loop, and it had a great tendency to slip out, so I began thinking up something better. Here it is—a very simple contrivance which any one can make. It is a very small spiral tube made of silver wire. You see, while it is a stem pessary, it is perfectly flexible. Its movements laterally cannot be influenced by any outside agency as with stem pessaries. It also does not press on the wall of the uterus by its end, as the stiff stem pessary does. As far as I can see, it cannot possibly do any harm, while it gives a most perfect drainage. The drainage is not, as in a tube, from one end, or from openings in the side, but the fluid can enter anywhere. The calibre cannot be compressed so as to close it. It can be made so small as to be introduced into the undilated cervical canal. This is an advantage, for it allows the cervical mucus to still protect the cavity from the vaginal secretions. We can introduce it, and the woman does not know that we have put anything into the womb, there is so little or entire absence of pain. I have found a hat pin a most convenient thing to wrap the wire around. The wire, preferably No. 24 or 25, is first laid along the hat pin for about three inches, beginning at the point; then commence to wrap over this three inches toward the point until we have a spiral about two inches long; each turn should touch the preceding. Now cut the wire off short. You will have the other end projecting from the cavity of the spiral about one inch. Pass this end through a thin button and back again into the spiral, and we have, I believe, the most perfect drain ever devised for the uterus. By pulling out the spiral we can open the strands a little, and in this way give each turn an individual pressure on the canal which would help hold it in if the uterus was in the axis of the vagina. If the neck of the womb is in the normal position the button rests on the posterior vaginal wall and it retains its position well. I often tie a thread to it, so that patients can remove it if necessary. It would probably be better if the button were

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made of thin silver with the edges turned up. Perhaps aluminum wire and button would do as well. Silver is said to have an antiseptic effect when in the animal secretions and so may be preferable. I am afraid that a silver wire and aluminum button would form a galvanic pile and the aluminum become corroded. I have used horn, pearl, and china buttons. I always sterilize the drain in a flame before introducing. It is always bright when moved.

I believe that the use of this drain will open a new era in uterine therapeutics. I have already seen surprising results in two cases of pyosalpinx, both of which cases I intended to operate upon. One was in the hospital, and I sent her home, as it was too near her monthly period. The other had made all her preparations to go. I do not feel justified in operating on either of these cases now. Although I have been using this drain a comparatively short time I have used quite a number of them, and am more and more pleased with their action. I used one in a case of sepsis following labor, after washing out for some days, and all danger was over. The washing always caused much nervous disturbance, so I discontinued it as soon as I dared, and the patient did very well afterward.

I have used for some years hard-rubber spiral drains for abscesses. These, I believe, were devised by a gentleman by the name of Schapps. They were too large for uterine work, except postpartum, for which they are excellent. They seemed to be cut out of a solid tube, and I do not believe could be utilized in very small sizes, such as would be required for uterine work. There would, moreover, be danger of their breaking. I have had granulations hold these tubes so tightly that I was in great fear of their breaking off. Latterly I have put a silver wire through them for safety. Large drains could be made just like the uterine. If the granulations should hold one of these, we could seize the end of the wire on the spiral and simply straighten out the wire. I believe that there is a use for these small silver-wire drains in general surgery, supplanting rubber tubes or silkworm gut.

2608 LOCUST STREET.

P. S.—Since reading the above and discussing the subject with others I find that two gentlemen had each a portion of my idea some years ago. Dr. Reeves Jackson devised a flexible spiral drain of hard rubber. This was necessarily large and required dilatation before introduction, and was, moreover, fixed firmly to a rubber cap. I can scarcely believe that

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it could be used on any patient except one kept in bed. The stem, being as large as a small lead pencil, kept the canal open, so that the cervical mucus could not protect the cavity. Furthermore, the stem was very elastic and tended to straighten the canal continually; in some cases this constant irritation could not be borne. I am glad to have run across this pessary, for it confirms me in the idea, if I needed confirmation, that an improvement in drainage is much needed, or a man of Dr. Jackson's experience and knowledge would not have devised this instrument.

Another gentleman, a Dr. Wilson, had advocated the use of tubes, made apparently exactly like mine, for general surgical drainage. All I know of these is obtained from a catalogue. They were advertised as four, six, and eight inches long. No button is shown. Judging from the description, it is hardly likely that they were used for uterine drainage.

The combination of the two ideas and the introduction of the spiral drain into uterine therapeutics I believe I can still claim the credit of.

VIRGINAL AND SENILE ENDOMETRITIS.[1]

BY

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New York City.

So much has been written on the subject of endometritis as usually observed during the period between puberty and menopause, that I shall not occupy your attention with any description of the various forms or the methods employed for the treatment of endometritis during the child-bearing period, but consider that variety of endometritis seen in virgins and postclimacteric endometritis. It has been a matter of surprise to me to find the literature on these varieties of endometritis to be so barren.

The obstetricians have made observations on and discussed as a definite form of catarrhal inflammation of the endometrium in children, an endometritis due to a "congenital erosion and split of the cervix uteri." There now seems to be some doubt if the obstetricians were correct in this reasoning, and, instead of the endometritis being due to the congenital erosion or split of the cervix, that these conditions were due in many cases to

[1] Read before the Therapeutic Club, 1897.

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an inflammation beginning in the endometrium and producing the erosion and split of the cervix.

Before our knowledge as to the etiological factors which must necessarily be present to cause inflammation was as definite as it now is, there was no difficulty in explaining the cause of a discharge from the vagina of virgins as being due to a local congestion, or even some maternal dyscrasia. Entirely independent of any known cause or the entrance from without of pathogenic organisms, and the fact that examinations of the discharge from the vagina of young girls have proved this to be free from these organisms, yet the number of young girls, or virgins of more or less advanced age, who suffer from chronic endometritis is not small.

The symptoms most frequently observed both in the virginal and senile cases of endometritis are identical, hence my desire to associate them and later to consider other factors peculiar to senile endometritis. In the majority of cases there is a more or less fetid discharge, distinctly purulent in character, and differing from the ordinary leucorrheal discharge in being less viscid or tenacious. The vagina and external genitals have various grades of pruritus, due to the action of the acrid discharge; there is sacral pain, or rather ache, with a feeling of fulness or bearing-down in the hypogastric region. There are often present bladder symptoms, such as frequent and painful micturition. The proverbial constipation exists with accompanying anorexia and digestive disturbances; often skin affections, especially acne; the chlorotic color in young girls, and the anemic symptoms of headache, dizziness, palpitations, and general malaise. Menorrhagia may be a very marked symptom even in young girls, or virgins at menopause. It is, fortunately, a universal practice never to subject an unmarried girl to a local examination of the sexual organs, yet after a thorough trial of internal medication has been made without effect, and, if possible, the general hygienic conditions made the best possible, all to no effect, then an examination should be made, preferably with the aid of an anesthetic, such as nitrous oxide gas. The examination may reveal an eroded cervix with patulous external os and an elongated but not always a generally hypertrophied uterus in those cases where there is menorrhagia. In the younger girls, before menstruation has been established, there is erosion of the cervix, but the cervical canal is stenosed at the external os, then dilated up to the angle of flexion at or a little above the internal os, and the body of the uterus not much enlarged. In all the cases I have

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seen there has been a congenital or acquired malposition of the uterus, acutely flexed, with lateral deviation.

The following records, taken from my case book, will illustrate the type of virginal endometritis occurring *before the menopause:*

Ethel P., age 11, born and always lived in New York City; the child of educated parents and good home environment. She was the third child, born at term, her mother having had four abortions or miscarriages between the time of her birth and that of her brother ten years before. As a baby she was always weak and suffered from gastro-intestinal troubles, and at 6 years of age had measles and whooping cough; each winter has colds and sore throat. Both parents were of the blond type, and the child has the complexion almost of an albino; always excessively nervous temperament, but bright and learned very easily.

Present History.—For nearly a year there has been a vaginal discharge, which has varied in amount, but always sufficient to soil the clothing, especially when she exercised. The vulva has been irritated, and micturition has at times been painful. No history of worms.

The child has been kept as clean as possible by frequent bathing, and various solutions injected into the vagina, as ordered by physicians, resulted in benefit for a time, but the discharge would return as soon as the injections were stopped. Physical examination gave only a marked anemic murmur. Urine high colored; specific gravity, 1026; acid; no albumin, no sugar; quantities of uric acid crystals and amorphous urates.

Permission having been given for an examination, the child was anesthetized and placed over a Trendelenburg frame, so as to give, practically, the knee-chest position. Rectal examination was first made, and an elongated cervix and retroflexed uterus determined. The vagina having been made as aseptic as possible, after the introduction of the smallest Sims speculum the conical and eroded cervix was grasped and the stenosed os divided with a blunt-pointed bistoury. The cervical canal was diamond-shaped and filled with typical hyperplastic granulation tissue. This was curetted, and, after gently dilating the internal os, a small dull curette was passed into the uterus and the uterine cavity curetted; the cervical canal was then dried and a little iodoform and boric acid powder blown in. No drainage was used. There has been no discharge since the operation, more than two years ago, and the girl has developed in health and strength with the employment of tonics of iron,

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arsenic, and strychnine, and abdominal massage for the relief of constipation.

Miss H. M., 22. Menstruation began at 15; has always been irregular in time and amount, and for the past two years the flow has been very clotted. Dysmenorrhea has been so severe that she was compelled to remain in bed four or five days at each period. The pain was cramp-like in character, and before the discharge appeared was located in the sacral region, then throughout the whole hypogastrium. Because of the excessive flow and dysmenorrhea during the long menstrual periods she was compelled to leave boarding school. She was treated for neurasthenia by the Weir Mitchell treatment, massage, Swedish movement cure, etc., in various sanitariums, all with no special improvement to the abnormal menstruation and the constant, profuse vaginal discharge. The girl was in a condition of chronic invalidism.

Examination, made first by rectum, showed an enlarged, retroverted uterus with prolapsed left ovary. A diagnosis of hyperplastic endometritis was made, and curettement advised as the only form of treatment which could improve the pelvic condition and restore her general health. Examination under ether confirmed the diagnosis of a very much hypertrophied uterus in the retroverted position; also a patulous cervical canal which easily admitted the middle finger. The cervix, on examination with the speculum, looked like the cervix uteri observed after a laceration from parturition, its lips being eroded and hypertrophied. The curette removed such quantities of tissue that I thought the case must be one of malignant adenoma or necrotic tissue from a suppurating fibromyoma. The microscope showed only the characteristic fungoid tissue of a hyperplastic endometritis and the absence of tubercle bacilli. After a thorough curettage with the sharp curette and removal of tissue by irrigation, the uterine cavity was sponged and then swabbed with nitric acid.

The improvement following this treatment was most gratifying, as the menstrual periods, except for moderate dysmenorrhea coming on before the flow and the pain located in the left ovarian region, were normal. The case has been kept under observation, and marriage about eighteen months after the operation, when the patient was 24, has resulted in the birth of a child at term.

Endometritis of a very severe grade is also to be observed in virgins at their menopause, when they have never before had any special symptoms of abnormal pelvic condition.

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Miss S., age 46 ; general health has always been good except for slight digestive disturbances and constipation. Menstruation began at 14; has always been normal as regards the amount and character of the discharge, and never any marked dysmenorrhea; only slight headaches and indefinite symptoms of bearing-down and backache experienced before the menstrual epoch. When she was 45 she first noticed a leucorrheal discharge before and after each menstrual period. The periods then began to be irregular and there was marked menorrhagia and metrorrhagia. Her general constitutional condition suffered greatly from this, and she became excessively neurotic and entirely incapacitated for her work. There had never been any local treatment ; not even a vaginal douche had been taken. The condition of the patient when first seen by myself was that of a case suffering from profound anemia, evidently resulting from the flooding which had continued almost constantly for the two weeks previous to my first visit. Because of her repugnance to any local examination, and absolute refusal to have any operation performed, measures were adopted, by the employment of hydrastis, ergot, and other internal medication, to stop the uterine hemorrhage, but without effect. Finally consent was given for an examination. Preparation for a curettage was made, and this was performed after the examination, which showed a hypertrophied, anteflexed, and retroverted uterus. Further examination showed a hard mass occupying the outer part of the broad ligament, attached to the ovary but independent of the uterus. This mass I believe to be an intraligamentous fibroid growing from the ovary, and not a pediculated fibroid of the uterus. A thorough curettage was then performed, removing an immense amount of extremely vascular granulation tissue. The cavity of the uterus was then thoroughly irrigated with a lysol solution, then dried and swabbed out with iodized phenol. A strip of iodoform gauze was then carried to the fundus uteri and the vagina lightly packed with iodoform gauze. All hemorrhage ceased, and the patient made an uninterrupted convalescence.

Senile Endometritis.—To Jacobs and Maurange abroad, and Sexton, Skene, and Mundé at home, we are indebted for most of the literature which has been written on senile or post-climacteric endometritis.

Jacobs regards the endometritis of the menopause as "an arterio-sclerosis followed by a diffuse sclerosis causing atrophy of the unstriped muscle fibre, which gradually becomes absorbed and replaced by fibrocellular tissue. The uterine

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mucosa diminishes in thickness after the climacteric. Its cells atrophy and undergo changes in shape, and the protoplasm is occupied by fatty granules. These conditions may cause an endometritis or some malignant derangement. The fetid discharge of the endometritis is due to the fact that the leucorrhea escapes slowly and has difficulty in finding an outlet and thus has time to decompose."

Skene considers senile endometritis as quite a different condition from the endometritis of early life. The disease usually includes the entire mucosa and is generally suppurative in form. The epithelium of the endometrium becomes almost entirely lost. Granulations of low vitality spring up. Minute extravasations of blood are seen with small pigment spots. Atrophy of the muscular tissue is present and causes inversion of the mucosa. The endometritis occurring in women after the establishment of the menopause is, according to Maurange, doubtless due in some instances to the reawakening of an old infectious process or to a necrobiosis accompanying the elimination of a moderate-sized fibroma.

But these causes cannot explain other cases. Mundé speaks of a senile endometritis which has followed the removal of the appendages in a case of double ovarian hematoma six years before. After that menstruation was quite regular for two years, and then abruptly ceased, doing so permanently, and when seen by him, two years after the artificial menopause, the woman presented a severe case of endometritis with subsequent vulvo-vaginitis. In these cases of senile endometritis it is most important that a positive differential diagnosis be made between endometritis and malignant disease. In certain cases this can only be done by the microscope, as clinical symptoms, and even the use of the speculum, may fail to enlighten us as to the true diagnosis of the cause of fetid discharge, hemorrhage, cachexia, and general malnutrition. The following history of a case of senile endometritis is interesting because of the indefinite symptoms which led many observers to apply treatment for lithemic, malarial, and intestinal ptomaine poisons:

Mrs. S., age 63, mother of two children at term and a history of having had two miscarriages. After the birth of her first child, because of excessive lacerations she was more or less of an invalid for a number of years, during which time active local treatment was applied. With the second child, born at term, she suffered from puerperal sepsis, and again was the subject of prolonged gynecological treatment. She has never been well since the birth of her last child, now over thirty years ago.

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When seen by me she diagnosed her own case as one of "liver trouble" because of indigestion and dyspeptic troubles, constipation, palpitation, and a general weakness. She had lived in the South, and because of certain attacks of intermittent fever believed she was suffering malarial poisoning, and was so treated by her physicians. Since the menopause there have at indefinite periods been occasional leucorrheal discharges, at times fetid and of yellow, purulent consistence. These discharges had irritated the vagina and vulva, causing a pruritus, and it was for this condition that she sought medical attention when she came to me. Examination showed a subacute vulvovaginitis, the cervix and uterus atrophied, and there was at this time almost a complete stenosis of the cervical canal. With great difficulty a small probe was passed through the canal, and by gradual dilatation with a set of Hegar's dilators the canal was made patulous and exit given to a few drops of an intensely fetid discharge. No operative interference was employed except the regular dilatation of the cervical canal and irrigation through double-current catheter of a weak iodine solution. This line of treatment gave most gratifying results. Her digestive troubles ceased. She gained in weight and felt better than for many years previously. This good condition continued until she had an attack of acute articular rheumatism, which seemed again to set up a local inflammatory process in the uterus, as shown by the return of the discharge with occasional hemorrhagic spotting. It is interesting in this connection to consider if the rheumatic or lithemic condition had an effect upon the uterine mucosa. Local measures, as above stated, were again applied, and she continued well until an attack of tonsillitis, when the discharge again appeared, but this time not marked in quantity nor fetid, as had been the discharge in the other attack. She was now placed upon a strict antilithemic diet, no local measures being applied, and the symptoms entirely disappeared.

I believe the cause of this woman's ill health for so many years was due to septic intoxication or sapremia from absorption of septic material contained in the uterine cavity, aggravated by a uric-acid diathesis. I also believe that many of these cases suffering from the whole train of ills associated with the so-called lithemic condition should be subjected to an examination if they give even the slightest symptoms of pelvic inflammation, especially after the menopause.

47 WEST FIFTY-SIXTH STREET.

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MATERNAL IMPRESSIONS.

BY

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(With illustration.)

MATERNAL impressions have received so many confirmations, have, both by the lay and the professional observers, been attested to so often, that little doubt remains as to the bare fact that certain mental, or mental and physical, impressions made during the pregnant condition do act in some way through the nervous system of the mother, affect some local development of the fetus, and thereby changes are wrought in certain structures that are persistent, and evidences are seen at birth, or remain during life, that show clearly the relation between cause and effect.

Much scepticism has, however, been shown, and even in the minds of some of our most careful observers the fact that any and all marks or deformities on a child are due to ordinary causes; and the plea has been most ably and forcibly brought forward that such existing deformities are generally made to correspond to some story of maternal impression, consciously or unconsciously exaggerated by the mother or others to agree with existing conditions. No doubt many reported cases are open to the above criticism, the history of such cases often being very vague, incomplete as regards details, and without scientific precision or method.

Many curious and interesting cases are reported by Gould and Pyle,[1] and in an article by William C. Dabney, M.D.,[2] there is a very complete list. Dabney shows that careful and scientific work upon such a record of maternal impression as he gives discloses the significant fact that the deformities cited correspond very closely in point of time to the fetal development of these structures, and that such structures can only be affected during their development or after being formed.

A curious case of maternal impression accidentally brought to my notice I shall make no apology for reporting, although the practical outcome derived may, in the present state of our knowledge, be somewhat visionary; still, all or any facts hon-

[1] "Anomalies and Curiosities of Medicine," p. 81.

[2] Keating's "Cyclopedia of the Diseases of Children," vol. i., p. 191.

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estly cited or conditions observed bearing upon that realm now so clothed in darkness—the effect of nerve force on the nutrition of the animal cell—cannot fail in time to bear fruit and bring us more to the light.

CASE.—Woman, American, age 69 years, has two children, normal in every way. Her brothers and sisters are normal; mother healthy, no skin blemishes. Patient was third child born to her mother; labor normal, with single exception to be noted. Had during all this pregnancy a most violent appetite for sunfish. No other fish satisfied this craving, and it was described as unbearable. During or after the fourth month her husband, while on a trip to a nearby city, bought some sunfish alive and, placing them in a pail of water, carried them home as a surprise to his wife. These fish on his arrival home were put on the back porch of his house, and his wife, all-unconscious of their presence, on going out on the porch stumbled violently against the pail, so disturbing the water and agitating the fish in it as to cause one of them to flop up over the edge of the pail and come forcibly in contact with her leg as it for the moment was pressed against the top of the pail. The shock of the cold and wriggling fish, so unexpectedly felt through a thin stocking, for the moment completely unnerved her, but she did not at that time attribute any harm to her child, and during the rest of the pregnancy rarely alluded to the fact; but her appetite for this peculiar fish was in no way diminished by the accident, and continued until the child was born, when, to her surprise, on the leg of her child was a mark closely resembling in shape and size that of a fish, and the mark on the baby's leg occupied the same position and was on the same leg upon which she had received the impression of the fish during her pregnancy.

The mark, as can be seen by the illustration, is on outer side of leg, roughly corresponding to a fish if it were placed obliquely with the head upward; in color a very dark bronze at points of deepest pigmentation, such as outline of darkest circles representing scales and at position of eye, the bronze becoming a light brown at other portions; but the contrast is most striking, even at these lightly pigmentized parts, between them and the surrounding skin.

This mark was at first smaller, gradually growing with the development of the baby, until at puberty it had attained its present size. The outline and resemblance to a fish was quite as perfect at birth as at the present time, now being twelve centimetres in length by three and one-half centimetres in

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width. The surface is not raised above the surrounding skin, nor is it at all roughened. Semi-annually, however, during spring and fall, the surface of the mark becomes somewhat raised, the integument becomes rough, and the entire skin over the area gradually becomes rough and dry, and separate portions of the skin over these points, resembling the scales of the fish, are exfoliated. This occurrence is always regular in its event, and has been from the first few months of life. It lasts about two weeks and is accompanied by intense itching, which the patient endeavors to allay by covering the part with soap and shaving off semi-detached scales.



The patient's health is and has been excellent. She is a typically sensible woman, honest to a degree, and, while markedly intelligent, is not emotional in type. She was loath to have her deformity of skin seen at all, and only a bad sprain received from a fall made disclosure a necessity; and it was only after considerable pleading that I could induce her to sit for a photograph.

One feature of the case is interesting and rather unique. The temporary abnormal craving for sunfish has been inherited by the daughter, only in her case it is constant and has existed from earliest childhood. It is a source of discomfort and shame to her. No other variety of fish she has ever eaten appeases this

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peculiar appetite, and she is indifferent to them. Nor, in fact, do the sunfish cure her, as she has time and again eaten these fish until from repletion she has vomited them and again eaten them with unabated appetite. This appetite has continued, as I have said, all through her long life, and has not been apparently influenced by menstruation or pregnancy, and is in its intensity analogous to the craving of some drug habit.

It is, of course, possible that this birthmark on my patient's leg is merely one of the numerous persistent skin markings seen in certain cases to remain during life. If so, the coincidence is a remarkable one between the history of the case, the appetite for this peculiar fish, and the clear and distinct outline of the same on the leg.

SOME PRACTICAL POINTS IN ABDOMINAL SECTION.[1]

BY

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I HAVE selected the subject, "Some Practical Points in Abdominal Section," for so common is this operation, so great are its possibilities, so important are its results, and so numerous are the indications for it, that we are all anxious to learn as much about it as possible and thus improve and perfect our work along this line. By the interchange of thought and experience we make advances in all lines of knowledge, so that even if I suggest nothing new, yet the discussion evoked may be both interesting and helpful.

First. Too many abdominal sections are being done. The craze for this operation, which began some years ago, has not entirely reached its true place, and it should be our aim to join with those of other medical societies in calling a halt, and we should insist that this is a capital operation, not to be done until all other milder measures have failed. I am glad to note that the radicalism of Murphy and some others in regard to appendicitis, "Operate as soon as you make the diagnosis," has been superseded by a more conservative and scientific dictum, so that it is now regarded as not only allowable but the very best treatment not to use the knife in many cases.

Second. Do not open the abdomen in cases of pus tubes with acute peritonitis. As a rule such patients die or do badly, and

[1] Read before the Omaha Medical Society.

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that whether you get further infection or not, as the peritoneum does not bear handling under the circumstances. Better treat such cases by hot applications, hot douches, opiates, and salts until the acute symptoms subside, when a celiotomy may be done and the tubes removed with comparative safety; or, if operative measures are urgently demanded, do a vaginal section and thoroughly drain in this manner until all acute symptoms have disappeared. It will often be found, too, that such patients come to be so well after a thorough vaginal drainage that they do not need, and hence should not have, an abdominal section done.

Third. Have patients carefully and properly prepared. I believe it to be a very desirable practice to have the patient's bowels quite freely move for several days before operation and gently moved the day before the operation. I am convinced that too free catharsis just before the operation increases the patient's thirst, and is a means of adding to the distension of the bowels afterward and makes it more difficult to secure a good action of the bowels when it is desired. I have not seen this point made elsewhere, but I deem it an important one to observe in all cases, and it is of special significance in cases where we are likely to have any infection in the abdominal or pelvic cavities. I like to have my patients take a good bath the day before operation, then have the abdominal and pelvic regions well lathered, shaved, and scrubbed with soap, warm water, and a stiff brush, then washed with bichloride solution 1 : 1000, and dressed over night with a moist dressing of the same. The vagina should be well cleaned, too, if the patient be a woman. When the patient is on the table all of this cleansing process should be thoroughly gone over again and the abdomen finally sponged with alcohol.

Fourth. Preventing stitch abscesses. "How do you avoid stitch abscesses?" I am sometimes asked. I believe it to be important to boil your silk at least half an hour just before using it, and then, when all stitches are tied and the ends cut away, powder iodoform freely over the wound and *rub* it thoroughly into the skin about the stitches. I am in the habit of using a single suture, sewing through the entire thickness of the abdominal wall.

Fifth. Method of treatment when stitch abscesses occur or suppuration appears in the wound. This is a matter of great importance, for from various causes such conditions will arise. The pus should be thoroughly removed and the wound daily cleansed and, if need be, packed with iodoform gauze. If

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these suppurating surfaces are freely washed with strong antiseptic solutions, as three per cent carbolic or 1:1000 bichloride, it will very materially check the process and hasten recovery. Gerster has well said, and his remark applies to such cases as are here mentioned: "The object of the antiseptic treatment is the limiting and elimination of established septic processes by drainage and disinfection." I can but emphasize this word "disinfection," for these cases illustrate the positive value of antiseptics almost as well as any with which I am familiar. The use of pyrozone and abundance of sterile water is all well enough, but the addition of the foregoing antiseptics is of decided advantage and may become essential. It is truly wonderful what desperately bad cases may be perfectly cured by frequent and free use of these means.

Sixth. The not very old practice of withholding all liquids from laparatomy cases for twenty-four hours is an unnecessary cruelty. Such cases nearly always desire large quantities of water, and to refuse it to them adds to their sufferings, and is, in my opinion, positively injurious. My attention was first forcibly called to this point by my father, Dr. S. Henry, of Illinois, a few years ago when I operated upon one of his patients and followed the usual custom of forbidding water to be given for the first twenty-four hours, as he reminded me that such practice was cruel and the future abdominal surgeon would not do it. Since that time I have observed my cases very carefully, and now I give my patients water, hot or cold, with pellets of ice, freely, and I am sure it is much to their comfort as well as to their benefit, and certainly it has never done harm. Even if your patient vomits, no material harm will be done, if she has been properly dressed. Let me add, too, that rectal injections of water or normal salt solutions, while beneficial, will not take the place of water per orem, nor yet will the drinking abundantly of water for several days preceding operation do away with the necessity of giving water by the mouth before twenty-four hours have gone by.

Seventh. It is not good practice to allow your cases to suffer severe pain and refuse them the relief offered by narcotics. It is an unnecessary cruelty and therefore should be condemned. The use of codeine hypodermatically will be all that some cases need, and others will require morphine and atropine. If they need these to make them comfortable I use them, and have never seen occasion to regret it. The same rule applies here as elsewhere in medicine: "Do not use these powerful remedies *at all* unless required, but when needed use them boldly and without fear."

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Eighth. Laparatomy patients may safely be turned to either side by the nurse as soon after operation as they desire it, and therefore it is an unwarranted hardship to keep them lying in one position for several days.

Ninth. That the stomach should be quieted down as soon as possible after taking an anesthetic for any purpose, all surgeons agree, and especially is this true in abdominal-section cases. Now, whilst the inhalation of strong vinegar, the use of bismuth and sips of hot water and bits of ice and mustard plasters and such like, should all be remembered and may prove useful at times, still I have found that one-twelfth grain of mur. cocaine, dissolved in cold water and given every hour or two, comes nearer being a specific for nausea and vomiting than anything else I have ever used.

Tenth. The bowels should be freely moved within forty eight hours after operation, and to bring this about I find the small doses of calomel, one grain every hour until four or five doses are taken, followed by Epsom or Rochelle salts if the stomach will retain them, or one-quarter grain of elaterium, very efficient. Sometimes it is necessary to use an enema of oxgall, sixty grains to the pint of water. If there be much distension of the abdomen the injection of one-fortieth grain of nitrate of strychnine directly into the abdominal walls every two hours will very materially assist in securing a good movement.

Eleventh. A peculiar restless condition of patient, with rapid pulse, almost certainly indicates secondary hemorrhage, and will demand reopening of the abdomen to secure the bleeding point. Especially is this true if there be also peculiar noises in the ears, of which the patient complains. Neither pain nor temperature are of so much significance in these cases.

Twelfth. As far as possible cover with peritoneum all raw surfaces in the abdominal and pelvic cavities. The danger from adhesive bands and future obstruction of the bowels, or other serious and painful conditions, while not imminent, is not sufficiently remote or improbable to warrant us in neglecting this precaution, especially where large surfaces are exposed which might be covered. In fact I am not sure but the time is near at hand when, instead of doing Battey's or Tait's operation in ten or twelve minutes, we will deliberately take more time and protect our stumps by carefully stitching the peritoneum over the ends before dropping them. To illustrate my point the following case may be cited: Mrs. S., age 36 years, had an abdominal hysterectomy done by the writer. The ovaries were removed and the entire uterus, leaving only a

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small stump of the cervix, which was covered with peritoneum, but a portion of the rectum had been denuded of peritoneum in enucleating the tumor. Patient made good recovery. Some ten months later she came to my office saying that she believed her bowels sometimes moved partly through the vagina. She was the very picture of health and had been well for months, so that I was slow to accept her story. However, a careful examination revealed some liquid feces oozing through the cervix and into the vagina. A second operation was advised and done. Abdominal section revealed the rectum firmly adherent to the top of the stump, which was now completely removed, the vault of the vagina sewed up with a double layer of catgut sutures, and the fistulous opening in the bowel repaired in like manner, covering up perfectly all raw surfaces with peritoneum. An uneventful and perfect recovery was the result.

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CESAREAN SECTION AND SYMPHYSEOTOMY, WITH REPORT OF CASES.[1]

BY

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Philadelphia.

THE following cases illustrate points of interest in the discussion of Cesarean section and symphyseotomy.

A. H., a colored woman, age 22, primipara, came to the Jefferson Maternity May 15, 1897, to secure attendance during labor. Her family history was good, and she had been healthy before her pregnancy. She was unmarried. Examination of her pelvis gave the following measurements: Anterior superior spines, 24 centimetres; crests, 26 centimetres; trochanters, 28 centimetres; right and left diagonal, 20 centimetres; external conjugate, 18 centimetres. Her fetus occupied the first position, the head presenting at the pelvic brim. The heart sounds were obscured by the placenta, which was widely spread on the anterior wall of the uterus. Vaginal examination showed that the head could not be made to engage and that the birth canal was ill-developed and small, which made an internal examination of the pelvis very difficult. Examination of

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, November 18, 1897.

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the patient's urine showed that excretion was fairly well performed. She entered the Maternity on June 2, and attention was at once given to securing a proper action of the intestines. The patient was evidently between seven and eight months pregnant, and it was hoped that the induction of labor would be followed by an uncomplicated delivery. Accordingly, on June 7, labor was induced by the introduction of bougies. On June 8 the os was nearly dilated, the patient had had good labor pains, but the head had entirely failed to engage. After ample time had been given for the engagement of the head, the patient was delivered by celiohysterectomy with intrapelvic treatment of the stump. As was anticipated, the placenta was beneath the line of incision and was rapidly separated. The peritoneum was stitched over the stump, the vessels being secured by silk in the usual manner. The patient made an uninterrupted recovery, no drainage being employed.

Her child was a male weighing 5 pounds at birth, whose head measured as follows: Maximum diameter, 13 centimetres; occipito-mental, 12½ centimetres; suboccipito-bregmatic, 9¾ centimetres; fronto-mental, 11½ centimetres; trachelo-bregmatic, 9¾ centimetres; biparietal, 9½ centimetres; bitemporal, 8½ centimetres; bimastoid, 8½ centimetres; bisacromial, 12 centimetres; length, 46 centimetres. The mother nursed her child without difficulty. On August 2 she came last to the Maternity for examination and was found in excellent condition. She has since left the city with her child.

In discussing Cesarean section the following points are of comparatively recent interest. Olshausen, in his paper at the Moscow Congress, stated that he palpates the uterus after it is turned out of the abdomen, to ascertain the location of the placenta. Leopold on the same occasion described his method of diagnosticating the position of the placenta by observing the distance between the round ligaments. It is familiar knowledge to obstetricians that the situation of the placenta upon the anterior uterine wall or opposite the openings of the Fallopian tubes so changes the contour of the uterus as to give warning of its presence. Palm has shown that without opening the abdomen the location of the placenta can frequently be determined by studying the contour and consistence of the womb.

Should the placenta be upon the anterior wall of the uterus the operator has a choice of two procedures. One is to rapidly tear through the placenta, extracting the child quickly and emptying the womb as soon as possible. This I have done

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successfully in four operations. The other procedure is that of Fritsch and Olshausen, which consists in incising the womb either longitudinally or transversely at the fundus. Fritsch has successfully employed the transverse incision, and claims that the arrangement of blood vessels in the uterus is such that the least possible hemorrhage follows this incision. I have had no experience with it, as my results have been satisfactory with the other method. It is interesting to note that infants so delivered are asphyxiated for a short time. In my experience they have been readily revived.

The choice of celiohysterotomy or celiohysterectomy depends upon several grounds. In the case described celiohysterectomy was performed, first, because it did not seem possible, in view of the absolute failure of a 7½-months child to engage in the pelvis, that the patient could ever bear a living child without abdominal section. Second, in rapidly extracting child and placenta the uterine incision was prolonged by tearing the muscle with the fingers, and there seemed some doubt as to whether good union would occur in such a wound. The first reason, however, was held to be the more important. The fact that lactation is well performed by women who have no uterus or ovaries is familiar to operators who have done Cesarean section.

S. R., age 15, colored, primipara, was sent to the Maternity from a police station house on November 27, 1896. She was four feet eleven inches tall; gave an entirely negative family and personal history, and had been by occupation a dancer, playing the part of *Topsy* in an "Uncle Tom's Cabin" company. On admission her pelvis measured as follows: Anterior superior spines, 24 centimetres; crests, 26 centimetres; trochanters, 30 centimetres; right diagonal, 19 centimetres; left diagonal, 18 centimetres; external conjugate, 17 centimetres; internal conjugate, 8 centimetres. The birth canal was elastic and fairly well developed. The fetus was in second position, its heart sounds distinct, and the pregnancy was well advanced in the ninth month. After the patient had received attention regarding the action of the bowels and other eliminating organs, labor was induced on December 14. The patient had excellent pains, and at noon on the 15th dilatation had been complete for several hours, but engagement and descent were lacking. The head was transverse at the pelvic brim, the left parietal bone was presenting. In view of the distensible birth canal, and the fact that partial engagement had occurred,

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symphyseotomy was selected. The suprapubic incision was chosen and the symphysis exposed without difficulty. When an effort was made to open the joint it was found that a cutting edge could not sever the tissue. The pubes was large and thick, and cartilage was present in but a part of its extent. Accordingly a saw which I had made for such emergency was used to open the joint. The occiput rotated behind, and the child was delivered without difficulty by Tarnier's forceps. It was asphyxiated, as the cord had been wrapped four times about the body and neck. The child was a female weighing 6 pounds 2½ ounces. Its head measured as follows: Maximum, 14½ centimetres; occipito-mental, 13½ centimetres; suboccipito-bregmatic, 9 centimetres; trachelo-bregmatic, 9½ centimetres; biparietal, 9 centimetres; bitemporal, 8¼ centimetres; bimastoid, 8 centimetres; bisacromial, 11½ centimetres; bitrochanteric, 9½ centimetres; length, 47 centimetres. As is my custom, the symphyseotomy wound and pubic joint were packed with iodoform gauze and drainage thus established. A catheter was placed in the bladder, which was constantly drained for a few days after the operation. The pelvis was immobilized by a broad band of adhesive plaster and a binder. The gauze packing was removed forty-eight hours after the operation.

The patient made an uninterrupted recovery. She nursed her child. There persisted, however, for some time a small sinus over the pubes and a serous discharge. Repeated examination without probing this fistula could discover no complications. The pubes united firmly and smoothly. This discharge finally ceased without interference, and the patient made an excellent recovery. Her pelvis measured after the operation as follows: Anterior superior spines, 24½ centimetres; crests, 25½ centimetres; trochanters, 13½ centimetres; right diagonal, 19½ centimetres; left diagonal, 20½ centimetres; external conjugate, 18 centimetres.

By comparison with measurements taken before the operation it will be seen that an increase of from one-half to one centimetre is observed in several diameters. Immediately upon getting up the patient manifested a strong desire to dance, and in her grace and agility gave abundant demonstration of her complete recovery. She is at present in good health, supporting her child and herself at housework.

Attention is called in this case to the benefit obtained by the open treatment, for two days, of the symphyseotomy wound.

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The separation of the joint was very difficult, and although no hemorrhage occurred there was considerable oozing. It was thought best to drain this, hence the gauze packing. It is always my custom to drain the symphysis, for the first twenty-four hours after operation, by a strand of gauze, but usually it is not necessary to employ gauze packing. It was inevitable that the sawn ends of the bone should heal by secondary intention, and it is questionable whether the gauze packing had much to do with the persistence of the sinus. The patient had no fever nor other sign of infection, and her recovery was most satisfactory.

In his recent report upon symphyseotomy Zweifel stated that he allows gauze to remain eight or ten days, securing union by granulation. His results have been excellent. This was the most difficult of eight symphyseotomies, and in contrast with an abdominal section was a tedious and uninteresting opera tion. Its results, however, show that with care and antiseptic precautions the symphysis may, if necessary, be sawn asunder and excellent union follow. The patient was kept under observation for some time employed in housework. She experienced no difficulty whatever in doing hard work. In choosing between symphyseotomy and Cesarean section it must be remembered that symphyseotomy is done almost entirely in the interest of the child. Under proper conditions it exposes the mother to no great risk, while it unquestionably saves the life of the child. It is exceedingly hard by statistics to compare the two procedures, and a wise choice must depend upon the good judgment of the operator.

250 SOUTH TWENTY-FIRST STREET.

TWO CASES OF CESAREAN SECTION.[1]

BY

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THIS operation is sufficiently rare to warrant the report of all cases. My first case occurred on February 18 of this year and was briefly reported at the Philadelphia meeting last June. It was as follows:

[1] Read before the Detroit Academy of Medicine, December 14, 1897.

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I was called by the house physician to see Mrs. L., age 26, second child, who had entered the outdoor department of the Woman's Hospital. The patient had been taken in labor about twelve hours previously, with very strong labor pains. On examination I found a tumor filling the hollow of the sacrum. It was hard and firm, and with the patient under chloroform and placed in various positions, knee-elbow, etc., it was impossible to move it. It was firmly fixed, and hard, bony structures could be felt in the tumor. I diagnosticated a dermoid, but saw that it was utterly impossible to deliver her, as the antero-posterior diameter was diminished to less than five centimetres. The os was well dilated and the bag of water ruptured. I had her immediately prepared and performed a Cesarean section, and stated that I would decide, after having delivered the child, whether I would do a Porro or a classic section. The operation was quickly performed, and after the living child and secundines were removed I examined the tumor and found it springing from the left ovary and adherent in the cul-de-sac, rectum, etc. With some difficulty I broke up adhesions and removed it, and finding the pelvis large and roomy, and with no obstruction to future labors, I decided to simply sew up the incision in the uterus and preserve the generative organs. The incision was sewed, with fine sterilized catgut, with deep and superficial sutures in the usual manner, with the edges of the peritoneum inverted and the abdominal incision closed with *en masse* silkworm-gut sutures. The woman rallied from the operation and got along very well for five days, the temperature only once reaching 101°, lochia normal and perfectly clean. She had carbolized douches every day, her bowels were moved on the third day, but there was one suspicious symptom: that was a rapid pulse, from 120 to 130. Still, the patient felt perfectly well until the evening of the fifth day, when she suddenly collapsed and died of heart failure. On account of the rapid pulse I was a little suspicious, and examined the woman carefully on the fourth day with a Sims retractor, and found issuing from the uterus a sanguinary, purulent, bad-smelling discharge. There was no doubt in my mind that she was suffering from sepsis. I carefully cleaned the uterus with absorbent cotton and swabbed it out with carbolic acid, but it was of no avail. On post-mortem examination the uterus was removed; the abdominal cavity was perfectly normal, and the incision in the uterus was closed strongly and firmly. Inside of the uterus, in the line of the incision,

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there was an ulcerative process going on. Dr. Sargent kindly made a careful bacteriological examination, but only found the staphylococcus pyogenes aureus. This clearly shows that the operation had nothing to do with the result, but the infection came from the vagina; and as she had been examined by all the house physicians and a number of students, as well as myself, there must have been a break somewhere in the aseptic care. If I had performed a Porro in this case I have no doubt that the woman would have recovered, and still I would repeat the operation in the next case under the same circumstances.

My second case was Mrs. V., age 37. This woman I had delivered in consultation in 1890 by means of craniotomy and evisceration. She had a very difficult time then, but finally recovered, and I told her that if she ever became pregnant again premature labor would have to be brought on or a Cesarean section performed. She did not become pregnant again until this year, when she called on a doctor in her neighborhood (she now lives in the country) and told him what a time she had and what I had said. He told her that was all right; he would see to her and get her through without any trouble. So she went on to full term, and when labor set in the usual trouble began. After being in labor three days and trying forceps repeatedly, he called Dr. Clippert in consultation, and they tried again and also tried craniotomy, but did not succeed, and finally gave it up and sent the patient to me at Harper Hospital. Here was a case with an antero-posterior diameter of 7 centimetres (2¾ inches), with an immense child, and subject to all kinds of manipulation, and it was a serious question what should be done. To deliver by the natural passage with craniotomy and evisceration would be a very difficult task on account of the largeness of the child. Having the other case in mind, it seemed to me the only chance the woman had was to perform the Porro-Cesarean section, thus being sure to prevent puerperal sepsis, and only subject her to the danger of sepsis resulting from surgical interference, which I considered very much less. After explaining things to the woman and the husband they readily consented, and I had the patient immediately prepared for the operation, as the shock and anxiety indicated no delay. I made the usual incision in the abdomen to a little above the umbilicus, but did not take the uterus out, as is often done, as it reached about to the ensiform cartilage, and I thought that by the assistant pressing

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on the abdominal walls there would be no escape into the abdominal cavity. The uterus was incised and the child quickly removed; the uterus now contracted and was then lifted out of the abdomen, the intestines being kept in place with towels. The placenta was quickly removed, and although our incision had not been through the site of the placenta, still the hemorrhage was very profuse and I was obliged to put a rubber ligature around the uterus. The balance of the operation was performed like any other total hysterectomy. A small gauze drain was used in the vagina, the toilet of the abdomen was made, and the incision closed. One quart of saline solution was injected into the rectum to lessen the shock, and the woman placed in bed. She made an ideal recovery, and her only regret was that she did not come in the first place, so that her child might have been saved. I neglected to have the child weighed at the time of the operation, and when I returned a few hours later it had been taken away by the undertaker, for which I am very sorry, as I would have liked to know the exact weight. The child's head was black, dark, and bruised in every way, showing what a strong effort had been made to deliver it.

There is no pleasure in performing a Cesarean section after the child is dead; still, we are obliged to do it occasionally, and I know it would have been a very difficult thing to deliver this woman by means of craniotomy and evisceration, even with all the facilities of the hospital, and, having her other confinement in mind, I have no doubt she would have died from shock and sepsis. Still, it is very difficult to decide what is best to be done; but considering the age of the woman, and that she would probably not again become pregnant, I thought it best for her recovery to perform the operation.

And this naturally brings up another point in connection with this operation: Is it best to do a Cesarean section or a Porro section? And I can simply reiterate what I stated at the Philadelphia meeting, that each case must be a law unto itself. When the cause of the difficult labor is a growth or a condition which can be removed, the uterus should be preserved, although there is no doubt that the risk to the woman in such a case is far greater. If, however, the difficulty lies in the bony structure of the pelvis, where the contraction is such that with every recurring pregnancy great trouble must be experienced, then, *as a rule*, a Porro-Cesarean section should be performed and the uterus removed. Sometimes, also, the

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danger of puerperal sepsis is so great that you had better save the woman's life without a uterus than have a dead woman with a uterus.

As far as the danger is concerned between a so-called classic and a Porro section, I never could see that there was any difference. It is claimed by some that the removal of the uterus is accompanied by a great deal more shock and the closure of the incision than in the classic Cesarean section. I have long since got over this idea. I do not believe that the removal of the uterus, either by the vaginal or the abdominal method, is accompanied by any more shock than the removal of an ovarian tumor or even a cirrhotic ovary. When there are extensive adhesions and a great deal of hemorrhage takes place, and the operation is a long one, there is always a good deal of shock no matter what the operation is. Then it depends a good deal upon the individual. I have seen a simple exploratory celiotomy, taking only a few minutes, accompanied by a great deal of shock, which shows that shock depends a good deal upon the state of the patient's health. If the vagina is not injured before celiotomy is performed, it certainly seems to me that by the removal of the uterus and the closing of all lymph channels it is almost impossible for a patient to get so-called septic puerperal fever. The only danger is of sepsis resulting from the operation, and this should be very slight in the light of modern surgery.

In this connection comes up the question of symphyseotomy, and undoubtedly, in some of these cases, symphyseotomy will enable us to deliver a woman even of a living child, if it is small. Still, from the records of symphyseotomy as I have been able to interpret them, performed in various parts of the world, it is not more favorable, if it is as favorable as a Cesarean section. I have no doubt it depends a good deal upon the man who has the case. The so-called obstetrician, purely, will advocate and practise symphyseotomy, and the abdominal surgeon will naturally be inclined to do a Porro-Cesarean section, as he has confidence in himself and knows that the danger is but very little. After symphyseotomy, sometimes the child's life must be sacrificed after all, and sometimes an abdominal section made; and then after symphyseotomy the woman has often a slow convalescence, frequently the bladder is injured, and sometimes absolute inability to walk follows. These are still moot questions, it seems to me, and it is only by careful selection of cases, considering the environments, the conditions

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which produced the difficult labor, the size of the child, and every other point bearing upon the question—these must be considered in each individual case; then a decision can be reached, and thus it will be found that each case is a law unto itself.

620 WOODWARD AVENUE.

A SUBPERITONEAL LIPOMA MISTAKEN FOR AN INCARCERATED INGUINAL HERNIA AND REMOVED THROUGH THE INGUINAL CANAL.[1]

BY

LEONARD S. RAU, M.D.,

Attending Gynecologist to the New Yorker Frauenklinik and to the Montefiore Home; Instructor in Operative Gynecology, New York Post-Graduate Medical School and Hospital, etc.

MRS. K., a large, stout woman of 40 and mother of seven children, was operated upon two years ago for purulent appendicitis, and has a resulting ventral hernia. Otherwise she has been well. Her labors have all been normal. Seventeen years ago, shortly after her first child was born, she noticed a small mass in the groin, which she was able to push back. This would come out from time to time, but could always be reduced without much difficulty. On Saturday, November 20, 1897, the mass again appeared, and, in spite of her strenuous efforts, could not be reduced.

I saw her on the 23d, three days later, during which time she had tried to reduce it at frequent intervals. I found a very hard mass, about the size of a hen's egg, in the inguinal region, and made gentle taxis upon it. but could not reduce it. Owing to its having been down so long, and to the fact that manipulation caused pain, I desisted and told her that she must undergo an operation. Her general condition was excellent. Her bowels had moved that morning, and her temperature was 99°. From the history and location of the tumor I considered the case to be one of incarcerated inguinal hernia, but was puzzled because of the density of the tumor, and believed that it must have a very much thickened sac.

With the assistance of Drs. Sternberger and E. P. Mallett I

[1] Read before the Section on Gynecology and Obstetrics, New York Academy of Medicine, December 23, 1897.

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operated at her home the same afternoon. An incision about three inches long was made in the groin, parallel to Poupart's ligament and directly over the mass, which I found encased in a thick capsule. This was carefully opened and the tumor peeled out. With it came a mass closely resembling gut, but by careful manipulation and dissection it was detached and found to be omentum. The tumor had a very long pedicle, which proved to be peritoneum and could be traced directly into the abdominal cavity. By passing my fingers deeply I could feel the uterus, and at first considered the tumor to be ovarian and the pedicle to be the tube; but by carefully following it to the uterus I found that I was mistaken. It seems probable that the tumor originated subperitoneally, and during its development became adherent to the peritoneum, which was gradually elongated into a pedicle owing to the traction of the tumor. I was unable to determine, however, the exact point of attachment of the pedicle within the abdomen. As no intestine could be felt, the pedicle was ligated with catgut and the tumor removed. The wound was then closed as in a Bassini operation and dressed with aristol and iodoform gauze. The subsequent history is uneventful. The highest temperature was 99°. The wound closed completely by first intention on the seventh day, and the patient was allowed to get up on the tenth day. The specimen was sent to Dr. Elsberg at the Mount Sinai Hospital Laboratory, and he reports that "the mass measures six by five centimetres, and presents grossly and on section the appearance of fatty tissue between masses of fibrous tissue. Microscopically the tumor is a pure lipoma. There is very little connective tissue in the section—not sufficient to call it a fibrolipoma. There are simply large aggregated masses of fat cells between trabeculæ of connective tissue."

Lipomatous tumors, as we know, are very common, occurring usually between the ages of 30 and 50. They are most frequently found under the skin of the back, neck, buttocks, axillary region, or abdominal walls; more rarely on the head, hands, and feet, or subperitoneally. Pozzi[1] reports a case of lipoma of the broad ligament which was mistaken for an ovarian cyst, and Terrillon[2] operated on one weighing sixty

[1] Med. and Surg. Gyn., vol. ii., p. 187.

[2] Bull. de l'Acad. de Méd., Oct. 6, 1885; and Leçons de Clin. Chir., 1888, p. 460.

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pounds which sprang from the mesentery. Gross, Dennis, Senn, and Tillman speak of subperitoneal lipomata in their text books as not being particularly rare, but I have been unable to find more than a few reported cases in looking up the literature. Grosche, in an exhaustive article on lipomata, also refers to them in a general way. They occur most frequently in stout people; when found in a thin person they are supposed to be of neuropathic origin. The prognosis is always good, and the treatment is removal of the tumor.

My case seems of interest for the following reasons:

First, the fact of the patient's ability to reduce the tumor up to three days before my first visit. This led me to mistake the case for one of incarcerated hernia, though, perhaps, the density of the tumor, her satisfactory general condition, and the absence of constipation in spite of the tumor being down for three days, might have led me to make the correct diagnosis. She did, however, complain of considerable pain, which likewise helped to deceive me.

Second, why could she always reduce the mass previously and not at the time of its last descent? I can only explain this on the ground that the tumor must have been gradually increasing in size, for she stated distinctly a few days after the operation, when I questioned her very carefully, that at first—namely, seventeen years ago—it was very small. It might have been possible, had I placed her in the Trendelenburg position and made very firm pressure, to reduce it again; but owing to my belief in its being an incarcerated hernia, I think I was justified in not attempting reduction but suggesting operation.

Third, as it had a long pedicle, it would seem that when it was pushed back it must have floated freely in the abdominal cavity.

Fourth, the question of diagnosis—namely, to differentiate this condition from hernia, either intestinal, omental, ovarian, or, as in some rare cases reported, from an appendical mass or an adenitis. This, I believe, could not have been positively done without an operation, when we consider the history of the case.

72 West Fifty-fifth street.

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ACUTE STRANGULATION OF PROLAPSED UTERUS AND VAGINA.[1]

BY

J. M. BALDY, M.D.,
Philadelphia.

MRS. C. D., 70 years of age, had passed the menopause ten years. She consulted me for uterine prolapsus, which had been annoying her for the past ten years: but which during the past year had become more troublesome. She had a great deal of backache, leucorrhea, frequent micturition, and within a few months a bloody discharge came on. The prolapsed mass had become much larger and she could not keep it up as formerly.

On examination an ordinary prolapsus uteri was seen protruding between the labia, with a superficial ulceration about the uterine neck the size of a silver half-dollar. The mass was freely movable and she could readily push it back herself, but it would immediately return, even while on her back. I advised operation and sent her home without any attempt to return it and keep it in place, expecting that she would come in a few days for an operation. Ten days later a member of her family called at my office to say that the patient had suddenly become much worse, that the mass had become greatly increased in size and that it could not be gotten back, that it was terribly sore, and that the patient was suffering greatly. Their doctor had urged that she at once be removed to the hospital. She was then on her way and would be there shortly. I was urged to see her at once upon her arrival and relieve her suffering. I saw the patient almost immediately after her arrival in her room. She was suffering intensely. Her temperature and pulse were both considerably elevated. The mass protruding from the vulva was twice as large as it had been ten days before, and it had undergone a remarkable change in appearance. The zone of ulceration had increased from the size of a silver half-dollar to involving fully half the protruding mass. The whole tumor presented a dark blackish appearance, quite similar in all respects to a strangulated hernia, after opening the sac. It was in a fearful-looking condition. With the utmost difficulty I finally succeeded in reducing it. The patient was at

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, November 18, 1897.

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once given a large hot douche of several gallons of water at a temperature of 110°. The relief to her distress was so great and the soothing effect of the water such that she had a quiet sleep of several hours. For the next week the douches were repeated twice daily, she was kept constantly on her back, and her nurse kept a close watch that the uterus did not again protrude. At the end of this time the ulceration had entirely disappeared, the parts had resumed their natural color and appearance, and the operation was proceeded with.

The abdomen was opened with the object of amputating the uterus low down on the neck and stitching the stump of the cervix to the ovarian stump, and thus securing a high level of suspension for it and the vaginal vault. To my surprise a solid tumor, the size of a hen's egg, was found to grow from low down on the neck of the womb, burrowing some little distance into the connective tissue behind the vagina. A total hysterectomy followed, and the vagina, after being closed, was attached to the ovarian stumps instead of the amputated cervical stump, as had originally been intended. The abdominal wound was closed, and the operation supplemented by an anterior colporrhaphy and an Emmet's perineorrhaphy. The patient made a good recovery and is perfectly well to-day, six months after her operation.

I have seen many bad cases of prolapsus, reducible and irreducible, one considerably larger than an adult head, but never before one which became acutely strangulated and which threatened the patient's life.

1722 CHESTNUT STREET.

A CASE OF ACUTE SEPTIC INFECTION AND STRANGULATION OF A COMPLETELY PROLAPSED UTERUS; VAGINAL HYSTERECTOMY; DEATH.[1]

BY

H. D. BEYEA, M.D.,

Assistant Gynecologist to the University Hospital; Instructor in Gynecology in the University of Pennsylvania; Assistant Surgeon to the Gynecean Hospital, Philadelphia.

I PRESENT this case of acute septic infection and strangulation of an irreducible prolapsed uterus before you because I believe it is extremely rare—I have been able to find no similar

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, November 18, 1897.

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case reported in the literature—and with the hope that the members present may offer some better method of treatment than that which I have followed.

The history of the case is as follows: Mrs. R., a well-nourished Irishwoman, 22 years of age, housewife, married, and the mother of four children, was admitted to the University Hospital on October 10, 1897. Her menstrual period had first appeared when she was 13 years of age, and had always been regular and normal, lasting four to five days, until three years ago, since which time it has occurred every two weeks and has been quite profuse. She had always enjoyed good health until 1891, when she noticed that the uterus protruded from the vulvar orifice. She then began to complain of bearing-down sensations and almost constant backache and headache. Within the next year the prolapse of the uterus became complete, but she was still able to replace it when desired. During the last four years, however, neither she nor her physicians have found it possible to reduce the prolapsed uterus and vagina. With the other symptoms described, she has complained of difficulty in passing her urine. She had sought medical advice at the Polyclinic and St. Agnes hospitals of this city, and had many times been advised to have operation. She, however, feared operation, and was contented as long as she was able to attend to her household duties, which she succeeded in doing until six days before her admission to the hospital. At this time, six days before coming under my care, she was suddenly taken with a severe chill which lasted fifteen minutes, and at once began to complain of general abdominal pain and tenderness. Her temperature at this time, as afterward given me by her physician, was 103° F., and her pulse 120. The abdominal pain and tenderness increased and the abdomen became distended. The bowels were constipated. Three days later she began to vomit persistently, the attacks of vomiting occurring every few minutes. The abdominal pain was so severe that her physician gave her large doses of morphia. He also made every attempt to open the bowels by giving her large doses of castor oil and Rochelle salts, but was not successful. On admission to the hospital, six days after the onset of her acute symptoms, I found her temperature 101° F. and her pulse 120. She was vomiting every few minutes and complained of a small amount of abdominal pain. The abdomen was not distended and there was little abdominal tenderness. A tumor-like mass, the size of a child's head, composed of a completely

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prolapsed uterus, a completely inverted vagina, and dislocated bladder, was seen protruding from the vulva. The bladder appeared distended with urine. The whole mass was greatly congested, reddish-blue in color, and the vaginal cervix and posterior vaginal wall were covered with large ulcers, each the size of a silver dollar; the edges were surrounded by pseudo-membrane. It was noticed that there was a considerable amount of serous or mucous discharge from the cervical canal. Thinking there was possibly an infection of the urinary tract, the patient was catheterized and the urine carefully examined. The urine was found perfectly normal. The patient was placed in the Sims position and hot applications were made every fifteen minutes to the prolapsed mass. She was also given one-fourth-grain doses of cocaine at varying intervals, with a hope of controlling the vomiting. As the bowels had not been moved for five days one-half-grain doses of calomel were administered every hour until six had been taken. During the next twelve hours the bowels moved six times and the temperature reached normal. The pulse was 112. The congestion and color of the uterine and vaginal mass appeared to have improved. At this time the patient was placed in the knee-chest position and several attempts were made to replace the uterus, but without success. The temperature rose again within the next twelve hours to 100° F., and then dropped again to about normal, so that there was an evening rise and a morning fall. The pulse remained constantly between 112 and 116. The vomiting continued, but at somewhat longer intervals, and the patient was able to retain some food. The mass protruding from the vulva was, however, becoming progressively darker in color, gangrenous, and it was apparent that the patient's strength was failing. The abdominal condition remained about the same, there being no distension and very little tenderness. As the cause of the patient's condition was undoubtedly septic infection and strangulation of the uterus, and as she was steadily growing worse, it was thought advisable to do hysterectomy. This was immediately and easily accomplished by the vaginal method. It was noticed at this operation that the loops of intestine which could be inspected from the vaginal wound were congested and covered with lymph; there was present at least an advanced pelvic peritonitis. The uterus was considerably but not excessively enlarged, and its walls, the myometrium, particularly the upper and lower uterine segments, were infiltrated with small abscesses. The Fallopian

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tubes and ovaries appeared perfectly healthy. Two Mikulicz drains were introduced well into the pelvic cavity, the wound covered with gauze, and the patient returned to her bed in good condition, her pulse being 120 and her temperature 99°. She was given strychnia and tincture of digitalis every four hours. The vomiting ceased during the next twelve hours, but she became very restless and at times wildly delirious. The drainage was very profuse, and thus the dressing had to be changed several times during the twenty-four hours. The temperature rose to 101° F. and the pulse to 120. Stimulation was increased and whiskey was added. She was given milk in small quantities and at frequent intervals. Twenty-four hours after operation one-half-grain doses of calomel were given every hour until six doses had been taken. This was followed by a number of bowel movements. At the end of forty-eight hours she began to vomit again, the pulse became more frequent and the temperature higher, the delirium increased, and she steadily grew worse, dying five days after the operation.

It is evident from the history that the patient had prolapse of the uterus for the last six years, and that certainly for four years it had been complete and irreducible. The usual changes in the uterine and vaginal tissues had taken place, venous congestion, edema, and consequent hyperplasia of the uterus and vaginal walls. In this case it is also evident that these changes were excessive; that they finally became so marked that either septic infection followed by strangulation resulted, or perhaps strangulation followed by septic infection, which terminated in a slow peritonitis and death from general septic infection.

It is reasonable to suppose that the chronic congestion, edema, and hypersecretion of the endometrial glands, and the poor nutrition of the prolapsed or displaced parts, with the extensive ulceration of the external surfaces, presented the most favorable conditions, the best culture medium, for the growth of pyogenic organisms—very probably the streptococcus, or possibly a form of staphylococcus. The Fallopian tubes were not infected in this case, as often occurs; the infection had taken place in the uterine cavity, followed, as is often seen in septic infection after labor, by infection of the myometrium, the formation of abscesses, and the secondary extension to the peritoneum.

The operation of vaginal hysterectomy did this patient no good because the infection had advanced too far. The vaginal

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walls were involved, and thus the source of peritoneal infection could not be entirely removed. It is my opinion that in this case death was inevitable, and I believe the same termination will follow in all cases in which the infection is as far advanced, irrespective of the method of treatment.

In considering the treatment of this case the advisability of performing celiotomy was thought of and discussed, but vaginal hysterectomy was chosen—first, because it was the easier, if not the only possible method, and also would be associated with less shock; and, secondly, because it seemed out of the question to replace this large mass, composed of an excessively dilated bladder and vagina whose walls were certainly one inch in thickness. I believe the great disproportion between the extruded mass and the vaginal opening would have precluded the replacement by traction from above, even with any possible assistance from below.

I have thoroughly searched the literature for similar cases, but am able to find only the following, reported by Alexander Monro in the medical essays of the Obstetrical Society of Edinburgh in 1735 (vol. iii., pp. 303–311). Monro's case was in a child, 3 years of age, who had been seized with a fever lasting some days. The fever was followed by a considerable discharge of blood from the vagina, which continued for three days. After this the patient seemed to be in perfect health for about twenty days, then began to have pain in the abdomen, loins, and thighs, and another such discharge of blood occurred. The flow of blood appeared regularly every twenty days for about a year. During the third month of the flow the mother noticed a swelling protruding from the orifice of the vagina, which disappeared as soon as the hemorrhage had ceased, but became progressively larger with each flow. There was also a continuous white discharge from the uterus. This discharge became so excessive as to equal the quantity of urine passed by the child. On making an examination of the vulva the uterus was found completely prolapsed, and attempts made to replace it failed. Hot fomentations and cataplasms were then applied, but the tumor daily increased in size, until at last the temperature became hectic and the tumor gangrenous. Monro several times contemplated amputation, but was frightened by the failures of Puysch and others. The child gradually became worse, and died in ten days after the onset of the gangrene. At the postmortem the tubes and urinary passages

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were found filled with pus. The infection certainly took place through the uterus in this case. Küstner[1] states that in only a small proportion of the rare cases in which prolapse of the uterus results in death do we meet with severe septic infection, abscess formation in the subperitoneal connective tissue, especially between the bladder and uterus, and the formation of abscesses in the uterine muscle tissues and ovaries. He says that eventually encapsulated abscesses and general peritonitis may be produced. This form of infection, which he believes is mostly a streptococcus infection, he has seen post mortem and in the living perhaps half a dozen times. Spiegelberg reports a case dying from infection of the tissue between the bladder and uterus.

237 SOUTH THIRTEENTH STREET.

CLINICAL REPORT.[2]

BY

GEORGE ERETY SHOEMAKER, M.D.,
Gynecologist to the Methodist Hospital,
Philadelphia.

OVARIAN CYST OF UNUSUAL SHAPE AND HISTORY.

S. W., a patient of Dr. W. J. Smith, of Lykens, Pa.; 40 years of age; born in New South Wales; has had eight children, the youngest being 2½ years. History negative until one and a half years ago, when pain began near crest of right ilium, but soon disappeared. One year ago a lump the size of a fist was noticed at and above the navel. It was movable, easily slipping into the upper abdomen. The pain, which was marked in certain positions of the lump, suddenly disappeared when it slipped into its place, which she thought was in the left side opposite the navel. She "could not move till it was slipped back." A solid prominence could then be seen above the navel in the left mammary line when patient was lying down. There has been rapid growth of tumor in past six months, but downward and not upward.

Points in the above history would ordinarily suggest a kidney

[1] Veit's "Handbuch der Gynäkologie," Bd. i., p. 80.

[2] Read before the Section on Gynecology, College of Physicians of Philadelphia, November 18, 1897.

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or spleen growth, and were doubtless dependent on the patient's attention being directed wholly to the solid and prominent and not to the cystic part of the tumor. For eighteen months the menstrual periods have occurred every two weeks. The right lobe of the thyroid gland is prominent and three inches in diameter. The skin of the face and forearms is deeply bronzed and growing more so. No other pigmentation. The face presents the facies ovariana in marked degree. When the patient is standing the distension is symmetrical, but on lying down the abdomen is acuminated, the highest point being two inches to left of umbilicus and a little below. This prominence forms the lower rounded edge of a solid growth which extends to the ribs above and three inches to the right of the median line. The whole lower abdomen is filled by a cyst with tense walls, separated by a sulcus from the tumor above. No colon resonance in front of growth. No enlargement of superficial veins. Ascites around and above the tumor just sufficient to fill spaces. Range of motion of solid portion is two inches toward spleen only. Uterus small and crowded against pubis by cyst, which completely fills the pelvis. Notwithstanding the history of growth from above down and the situation of the solid portion high up, the tumor was considered probably ovarian, and was removed in the presence of a number of members of the American Medical Association. The solid portion weighed 12 pounds; the semi-liquid cyst contents, 16 pounds; total, 28 pounds. The omentum was adherent and was ligated off low down, because it was adherent and contained several thickened portions, two or more inches in diameter, apparently of hemorrhagic or mild inflammatory origin. The pedicle was small and sprang from the left broad ligament. There were no other nodules or secondary foci. The vaginal side of the recto-uterine cul-de-sac was dark blue in color, undergoing degeneration from pressure. A mass of firm inspissated yellow lymph without odor, an ounce or more, occupied the pouch and was removed by the fingers, its site being separately sponged. Abdominal cavity dried by sponging; no irrigation; no drainage. Wound closed in layers; chromicized catgut to muscles and to aponeurosis. The recovery was aseptic and uneventful, the pulse reaching 90 but once. Five months later her physician reported her as the "picture of good health" and doing the housework for her family of nine.

The solid portion of the tumor consisted of innumerable minute saccules containing gelatinous material. A small cystic

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portion contained about four ounces of material resembling pus. Another contained a patch of calcareous spicules half an inch high; no hair.

Microscopical examination by Dr. Edsall showed polypoid excrescences, of which the central fibrinous portion had undergone hyaline degeneration, taking Van Gieson's stain brilliantly. Their surface was covered with epithelial cells; granular débris between the polypoid projections; whole mass composed of hyaline fibrous walls, degenerated epithelial cells, and granular débris; no evidence of malignancy.

OVARIAN CYSTOMA.

Mrs. ———, private patient, sent by Dr. W. G. Porter; 48 years; one child, 15 years old; two miscarriages. Menstrual history negative; quantity lately diminishing. For several months pain referred to right sacro-iliac juncture and higher; of moderate severity. Tumor discovered accidentally one week ago.

Operation.—Removal of ovarian cyst from right side, size of an adult head; thick, yellowish, viscid contents. Left ovary was a little enlarged and containing small cysts; it was removed. Abdomen closed by layers of stitches; chromicized catgut to aponeurosis.

Absolutely aseptic and uncomplicated recovery. Tumor contained two papillomatous projections, an inch in diameter, springing from its inner surface.

FIBROMA OF UTERUS, TUBO OVARIAN ABSCESS; PANHYSTERECTOMY.

E. N., patient of Dr. Samuel P. Seese, of Lansdale, Pa.; 34 years; married five years; sterile. Menses at 14; very little pain; always large quantity; seven days' duration, four weeks' interval. Tumor first noticed four and a half years ago in left side below umbilicus; has grown rapidly in last eighteen months. Fairly well until three months ago, when an attack of peritonitis confined her to bed for a month; much pain ever since; frequently goes to bed with attacks of pain; periods rather more profuse, but no severe hemorrhage; indication for interference, pain and general disability due to tumor; patient unwilling longer to bear her suffering.

Examination showed an extremely hard, irregular fibroid tumor of the uterus, reaching nearly to the ribs in the left mammary line, extending all across the abdomen, immovably

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adherent in position. A large mass depressed the posterior vaginal wall, almost completely filling the pelvis, and with great difficulty the finger could reach between this mass and the pubic bone, so as to barely touch the cervix, which was high out of the pelvis.

A diffuse, well-marked mitral heart murmur was present. Though the pulse was rather rapid, it was regular, and operation was considered justifiable. It proved to be formidable. The attack of peritonitis had left extremely firm adhesions to everything. The bladder was dragged up nearly to the umbilicus by firm sheets of adhesion. The growth was very irregular, and each projecting nodule was firmly embraced by adherent bowel or omentum or bladder, as the case might be, and bowel dipped deeply into narrow sulci. A tubo-ovarian abscess in the left side contained approximately four ounces of pus. It was ruptured during removal, and salt solution used to flush its site after it was ligated off. Nothing resembling the normal anatomy of the uterus could be found, and in the specimen at present it is impossible to find a cervix or to establish relations. When all adhesions were free and vessels tied off the tumor could be lifted like a large mushroom-shaped mass high above the abdomen, to which it remained attached by a stem consisting of the vagina, which entered a depression between two tumor masses. The vagina was cut off and its edges sewed together with fine silk. This peculiar disposition of the vagina had been produced by traction due to the growth of the tumor.

Gauze and tube drainage, on account of enormous raw surfaces. Patient put to bed in fair condition, though the pulse continued high. Next day she was cheerful and confident, but the pulse and respiration gradually mounted in spite of subcutaneous salt solution and various forms of stimulation, death occurring thirty-two hours after operation from exhaustion. Through the wound the abdominal cavity was examined. There was no hemorrhage and no evidence of inflammation. Amount of urine in first 24 hours, 12 ounces, clear.

The death was due to exhaustion following a formidable operation in a patient with mitral heart disease. The case was the forty-first in a consecutive series of miscellaneous abdominal operations, all the others recovering. There was at the same time in the hospital another formidable hysterectomy for fibroma complicated by pyosalpinx, but that case fortunately recovered and is elsewhere reported.

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FIBROMA OF UTERUS; SUPRAVAGINAL HYSTERECTOMY.

The specimen here presented was removed from a very stout woman, 38 years of age, who was also the subject of an umbilical hernia. She was a patient of Dr. Zander, of this city. Owing to the obesity of the woman the duration of the growth could not be determined. Bleeding had not been a prominent feature of the history, but pain had been severe. This was probably due to nipping of the hernial contents between the tumor and the ring of the hernia. There had been no peritonitis, and no tumor adhesions were present. The mass weighs about seven pounds.

At the operation the incision was begun below the umbilical hernia, which was first dealt with. Its adherent omental and bowel contents were withdrawn from within, the sac with its several prolongations was dissected out, and the ring cut away. Hysterectomy was then done by ligation and supravaginal amputation; the pedicle was dropped, and the abdomen closed without drainage. The recovery was aseptic and uneventful, the chief difficulty being found in inducing the patient to remain in bed for the necessary three weeks. In fact she boasted of having been up in the night during the relaxed vigilance of a nurse.

VAGINAL HYSTERECTOMY.

H. H., 49 years, German, five children. History negative until present illness, though periods always rather profuse. One year ago the flow increased decidedly and became irregular. Two weeks ago a sharp bleeding with loss of about one pint of blood. Chief symptoms are dysuria, pain in back and lower abdomen, at times severe. Eight months ago an offensive vaginal discharge began, which was subject to intermissions. Within past few weeks several decided attacks of bearing-down pain followed by copious discharge of offensive purulent fluid, which probably came from the left tube, in the light of subsequent investigation. This discharge would be very copious for three or four days, then diminishing. Patient has rapidly lost weight and is pale and cachectic.

Examination showed no evidence of malignant infiltration to touch; uterus increased in size and firmly attached to the sacrum; masses both sides of pelvis, not clearly diagnosed on account of great tenderness and rigidity of the abdomen; the urine contained pus, the specific gravity was 1012, but the quantity under prolonged preparatory treatment became fair in

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amount, and operation was undertaken with the express understanding that its risk was increased by the renal condition.

The vaginal route was chosen, as less likely to be followed by severe shock in a patient in poor condition, with kidneys diseased, though the difficulties met caused regret that the abdominal route had not been selected.

Operation.—After the usual ligation of the blood supply of the uterus from below, it was found impossible to draw the uterus down into the vagina. There were intestinal adhesions to the tubes and to the fundus, which required separation by the finger introduced through Douglas' cul-de-sac. After this was done, with considerable difficulty the large uterus was delivered, and after it the left tube, which contained thick, yellow pus in abundance. The efforts to enucleate the tube caused this same character of pus to flow from the os uteri, which was then closed by forceps. When the fimbriated end of the tube was loosened from its surrounding adhesions an ounce or more of pus escaped into the pelvic cavity. This was sponged or washed away with salt solution and the removal of the tube completed. More or less general oozing required the application of forceps to pedicles in addition to ligatures, and, when this was done, it was found so difficult as to be unwise to remove the other tube, which was strongly attached high up against the outer wall of the pelvis on the right. Its inner end was then cut across for drainage, although no fluid could be demonstrated in it, and this cut end was sewed to the cut vaginal edge. Iodoform gauze packed into pelvis and vagina. There was some tympany and pain, with elevation of temperature to about 101°, during the first thirty-six hours, but on movement of the bowels these symptoms disappeared. Pulse and temperature remained practically normal with freedom from pain after the third day, and patient made an excellent recovery. Two and a half months later she was well and much heavier.

The tube left behind was small and may have contained no pus. Leaving it was undesirable, but the necessity arose from choice of the vaginal route for operation—a method to which the writer is not partial in this class of cases. Vaginal hysterectomy is, in his opinion, best suited to carcinomatous conditions where the uterus is small and can be drawn down.

Specimen.—A soft polypus, three-fourths of an inch long, pendent from the fundus by a strong attachment, was evidently the source of the hemorrage. The uterine cavity was enlarged

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and contained about half an ounce of yellow pus, which had apparently come from a tube, but was retained by closure of the cervix necessitated during operation from the escape of pus before mentioned. The uterine wall was one and a half inches thick in front. A fine probe could be readily passed out from the cavity of the uterus through the uterine cornu, and for a distance of more than an inch into the tube, showing the patency of the uterine extremity of the tube. The probe was arrested further on by convolutions. The length of the tube when emptied was six inches.

The accuracy of the history of the escape of pus from a tube through the uterus must always be received with caution. Some have denied its possibility, but it sometimes occurs.

The present case is presented as an instance of the kind, because the distinct history of copious intermittent discharge of offensive pus following attacks of bearing-down pain was corroborated by the free escape of pus into the uterine cavity during operation and the patency of the uterine end of the tube in the specimen.

3727 CHESTNUT STREET.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of November 18, 1897.

J. M. BALDY, M.D., *in the Chair.*

DR. EDWARD P. DAVIS reported

CESAREAN SECTION AND SYMPHYSEOTOMY, WITH REPORT OF CASES.[1]

DR. GEORGE M. BOYD.—Dr. Davis' report of two interesting cases I consider a valuable contribution to our Society. The Cesarean case is of much interest to me, having had the opportunity only three weeks ago of doing a Cesarean and meeting with the same complication that Dr. Davis met with—an anterior implantation of placenta. In my prior experience with the operation I had not met with that difficulty. I stripped the placenta from the one side, opened the amniotic cavity and delivered the child by the breech, and allowed the uterus to contract well down upon its contents, then slowly removing the placenta and membranes. I did the classical operation.

[1] See original article, p. 218.

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The indications were a contracted, laterally deformed pelvis due to a coxalgia starting at the fifth year. She went about on crutches until her twelfth year, was very much crippled, her pelvis twisted considerably, resembling the Naegele deformity. I made a clean incision in the uterus, emptied its contents, and sewed it up with fine silk sutures. The patient made an uninterrupted recovery. It was my desire to perform an elective operation, but while preparing for it the patient fell in labor, and the operation was performed after she had been twelve hours in hard labor, the head still remaining immovable above the pelvic brim. It was her second pregnancy; the first child had been delivered by the crushing operation two years before.

The report of the symphyseotomy was also of interest to me. I had last spring the opportunity of showing several of the members of the American Medical Association a case in which I performed symphyseotomy a year and a half prior to that date. The patient was in excellent condition. able to walk perfectly well, and, as she was exceedingly poor, it was necessary for her to do all of her household duties. She had no vesical disturbance and was in excellent condition. The symphyseotomy in that case was indicated because of flattened pelvis; there was a history of difficult labor. There were two pregnancies prior to the symphyseotomy, one a difficult forceps operation and the second operation a craniotomy. I had some difficulty, as Dr. Davis states he had, in separating the pubic symphysis. It was the first symphyseotomy I had performed, and I attributed the difficulty possibly to lack of experience. The pubic symphysis separated after some little difficulty; there was quite a degree of separation, and the head, which had been transverse at the inlet, descended, rotated, and with a comparatively easy forceps operation the child was successfully delivered. I did not drain the case freely, although I used three or four strands of silkworm gut, putting these strands deeply into the wound and then closing the wound completely.

Dr. John C. Da Costa.—I was so unfortunate as to arrive too late to hear Dr. Davis' paper in which he described the celiotomy, but I congratulate him upon his success in the second case (the symphyseotomy) and on the good judgment he showed in sawing through the pubis. It is not every man who, when he gets into difficulty of that kind, knows exactly what to do, and a good many allow themselves to be a little confused, abandon that operation, and do a celiotomy as the easier one. I think the results of the case show Dr. Davis' treatment was a good one; his judgment was good, and I think he should be congratulated on the results.

Dr. E. P. Davis.—Dr. Boyd speaks of desiring to perform the elective Cesarean operation. There is always a risk in attempting to elect a time for Cesarean section, because the preparations which one will make for the operation by purgation may excite labor pains and the patient may come into strong labor; if the operator is delayed in reaching the patient he may lose the child through pressure. This happened to me

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last spring. A woman, nine months pregnant, very desirous of obtaining a living child, was sent to me by Dr. Da Costa. She was prepared for celiotomy and came into labor. She was a foreign woman, unable to speak English, and in some way she did not attract the attention of the nurses, and before I could reach her she had had very strong labor pains and the child was moribund through pressure. She was delivered by a virtual embryotomy. Postmortem examination of the infant showed that death had occurred before forceps extraction. This is one of the interesting points in the question of Cesarean operation. If one could have an elective operation by daylight the operation would be as simple as a celiotomy done for other conditions, but if one must expect to operate at any time, with any surroundings, whenever labor may occur, then the question becomes more complicated. If a celio-hysterectomy can be performed I can see no reason for waiting. We can prepare patients for delivery, and so soon as we think the fetus is fully ripe, has obtained maximum development, we can proceed to do celio-hysterectomy.

The choice between celio-hysterectomy and celio-hysterotomy is a difficult one. It has occasioned considerable discussion in the American Gynecological Society, where our Fellows are divided into two camps. One asserts that celio-hysterectomy is a justifiable operation, first, in married persons who give their consent freely to be sterilized. and, second, in unmarried vagrant women whose progeny is an increased burden to the State. That ground is held by Dr. Coe and myself. Other members hold that it is never justifiable to do this operation on a woman who can bear children, without her permission. I have tried to bring this matter to unmarried vagrants and have them deliberately choose for themselves, but I have found these patients absolutely incapable of an intelligent decision, so I feel that it is warrantable for the operator to do a celio-hysterectomy if, in his judgment, in view of what he can learn of his patient, it seems indicated.

As regards symphyseotomy: The first one which I did was characterized by difficulty in opening the joint. I thought then it was because I did not know how to find the joint, and that may have been the case. In the succeeding operations the joint could be readily opened, several times with a scalpel and several times with an ordinary probe-point bistoury of the surgeon's pocket case. It seems fair to think there was an abnormality in this pubic joint. The use of the saw is a simple measure, as has been shown by Farabeuf. The results were perfectly satisfactory. These were hospital cases. If one were to choose in a private case between symphyseotomy and Cesarean section, one would have to consider very seriously the subsequent condition of the woman. Thus the patient whose case is reported has perfectly recovered, and I have under observation several others of whom this is true. However, recovery from symphyseotomy is more complicated, the patient's confinement is more irksome, hence it is the least desir-

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able of the two operations so far as convenience is concerned; but when one compares results it is very hard to choose between them. Foreign operators and authorities are distinctly of the opinion that symphyseotomy has less danger to the mother than Cesarean section—Tarnier, Zweifel, and others.

DR. W. A. N. DORLAND.—I should like to ask what Dr. Davis' views are as to the advisability of the recent suggestion that has come from across the water of the permanent widening of the pelvis, after symphyseotomy, by means of the insertion of ivory or bone plugs between the edges of the divided bone.

DR. DAVIS.—A suggestion like that was made informally at a meeting of the College of Physicians last year, when a paper was read on symphyseotomy—I do not remember whether by Dr. Hirst or myself. There are two opinions regarding symphyseotomy. One asserts that the pelvis is not enlarged; the other, and my own belief, is that the pelvis is enlarged without the insertion of anything between the joint surfaces, and therefore I fail to see the necessity of using a foreign body. I believe the most rational measure would be the transplantation of periosteal flaps to fill in sawn or cut ends of the joint. That would seem good surgery, and is carried out successfully in other parts of the body.

DR. GEORGE ERETY SHOEMAKER read a paper on

(*a*) CASES OF FIBROID UTERUS; (*b*) PYOSALPINX INTERMITTENTLY DRAINING THROUGH UTERUS; (*c*) TWO OVARIAN CYSTS.[1]

DR. J. M. BALDY.—There is one point upon which I would like to comment. I want it distinctly understood that not the slightest offence is meant to the author of the paper by these remarks. I mean them absolutely impersonal. He used an expression which I personally do not feel like allowing to go unchallenged any longer, because it is made so often. I think those who do not believe in vaginal hysterectomy ought not to fail to contradict it on all occasions. Dr. Shoemaker says he chose the vaginal operation "because he thought the patient would be less shocked." That is the main reason given by vaginal operators for their choice of the vaginal operation as against the abdominal—the supposition that they get less shock. It is held forth as one of the prominent points why the vaginal is preferable over the abdominal. Now, if these gentlemen mean to say they get less shock by *their* vaginal operations than they do by *their* abdominal, I am willing to accept the statement; they should know best about that. If they mean to make this statement general, including my work, I protest. I take the emphatic stand that the statement is not true as applied to my own work. It is untrue that in a given case operated on by a man who knows how to do the abdominal operation there is more shock than if he operated by the vagina, and

[1] See original article, p. 236.

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I can conceive of no general condition in which the vaginal operation is the preferable one in the majority of cases, if a completed operation is contemplated. On the other hand, I can conceive, if the patient is in a bad condition, the vaginal operation is pre-eminently the bad operation; it is the longer operation and requires a longer etherization; it requires more traumatism.

DR. SHOEMAKER.—I have had considerable opportunity to see abdominal and vaginal work in various hands, and the result of that observation has been that the same duration of operation, the same amount of handling of parts below the ilio-pectineal line, in patients in similar condition, was followed by a greater amount of shock when operation was done through the abdomen than when done through the vagina. I think there is a physiological reason for that in the anatomy and physiology of woman—a reason that is broader and deeper than the more or less miraculous skill of any operator. A woman is constructed with a view of her being subjected to a considerable amount of traumatism by the way of the vagina, in labor and at other times, and rather prolonged traumatism in the *lower pelvic zone* will be withstood through the vagina without affecting the heart as much as a similar manipulation which involves reflexes through the distribution of the sympathetic nerve higher up. I think that gentlemen of equal skill in both methods of operating who compare the recoveries would be struck by the fact that a patient who has been called upon, for example, to endure a two hour operation by the vagina, might recover from ether with a pulse of 75 and a pulse which would stay 75, while I think few men have seen a two-hour abdominal operation for conditions in the lower pelvis go through a normal recovery with a pulse of 75. I think two hours is too long to do most operations, but I make the comparison for the sake of illustration. I think that the vaginal route is chiefly adapted to the removal of small carcinomatous uteri. and I think it is not well adapted to chronic pelvic inflammation with pyosalpinx.

DR. JOHN C. DA COSTA.—Dr. Shoemaker speaks of a two-hour operation by the vagina and a two-hour operation by the abdominal route, presumably with tumors of the same size. It is very rarely we have a two-hour abdominal operation. A two-hour abdominal operation is generally upon a tumor that could not be removed in four hours by the vagina. I have seen a considerable number of hysterectomies by both routes. A tumor of the size he shows me there seems to me would take much longer to remove through the vagina than through the abdomen. Vaginal hysterectomies appear to be adapted to small tumors without adhesions. Take a large tumor such as some men are removing piecemeal through the vagina. They often have adhesions. I have seen some terrible complications when an attempt has been made to remove them by the vaginal route. These adhesions are easily broken up when you choose the abdominal route: you can see what you are doing; you

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will leave no untied blood vessels such as I have seen in vaginal hysterectomies, when the abdomen has absolutely had to be opened to tie the bleeding vessel.

DR. H. D. BEYEA and DR. J. M. BALDY reported

CASES OF ACUTE STRANGULATION OF PROLAPSED UTERUS AND VAGINA.[1]

DR. B. F. BAER.—I have treated many cases of complete prolapse or procidentia of the uterus, some of them complicating and coexisting with pelvic and abdominal tumors, such as that described by Dr. Baldy; but I have never met with a case of acute strangulation as appears to have existed in the case of Dr. Beyea. In a few cases the uterus was incarcerated in the prolapsed and procident vagina, but the incarceration in these cases was due to adhesions which had probably been so gradual in formation as not to have resulted in acute strangulation. A condition of passive stasis, rather, existed. The remedy applied in all of these cases was operation by abdominal section, separation of adhesions, removal of the existing tumors and elevation of the uterus and vagina to the normal position, and then, if necessary, supravaginal hysterectomy and fixation of the stump. The result was invariably successful.

If the uterus is incarcerated in the procident vagina and gentle taxis fails to reduce it, persistent effort should not be made, and force from below never applied, no more than force should be used in incarcerated or strangulated hernia of the intestine. If force is used inflammation and acute strangulation would probably result from the injury produced by such unscientific practice. To have made taxis, especially with the patient in the Sims and knee-chest positions, in the acute inflammation which existed in one of the cases reported, was, in my view, quite unjustifiable. It seems to me that if immediate operation by abdominal section had been made when the patient was first seen the result might have been different.

Your case, Mr. Chairman, was not one of acute strangulation, but rather one of stasis from incarceration, due, as the operation showed, to pressure from the presence of a tumor. I believe the treatment of your case by abdominal section was the proper operative procedure, but I do not think I would have waited a week for the superficial ulceration to have healed before removal of the cause of the ulceration, which was stasis from tumor pressure. However, in view of the fact that you were able by gentle taxis to replace the uterus, and in the absence of symptoms of acute peritonitis or sepsis, the delay was not so material.

DR. D. T. LAINÉ.—I would like to ask Dr. Baer a question. I saw this case with Dr. Beyea, and we discussed the two methods of hysterectomy. Dr. Baer wondered why Dr. Beyea did not operate from above! I would like to ask Dr. Baer his reasons for advising abdominal operation in an organ which is

[1] See original articles, pp. 230 and 231.

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entirely outside of the vagina. At that time we spoke of the difficulty of the two operations; the vaginal route is so much easier, there is no handling of intestines, and I really do not see what one gains by doing a supravaginal hysterectomy in such a case. In the case Dr. Beyea records there was such complete procidentia that the operation was a very easy one. The woman really had general septic infection, and I think as he does, that she would have died even if she had not been operated upon. I would like to ask Dr. Baer his reasons for advising supravaginal hysterectomy in preference to the method adopted by Dr. Beyea.

DR. DA COSTA.—I would like to ask Dr. Lainé whether in his experience, when vaginal hysterectomies like this are done for prolapse of uterus, he does not have prolapse of vagina six or eight months after operation. How can he prevent prolapse of the vagina unless he opens the abdomen and stitches up the cut ends of the canal?

DR. GEORGE ERETY SHOEMAKER.—I understood Dr. Beyea to say his tumor was outside of the body and irreducible from swelling and external edema at the time of operation. The conditions obtaining there are the same as in strangulated hernia in any other part of the body. If the abdomen is opened and an attempt is made to reduce any strangulated hernia, it is not as safe as cutting down from the outside.

DR. B. F. BAER.—In reply to Dr. Lainé: Speaking generally, I prefer the abdominal route in hysterectomy in all cases of non-malignant disease. because I believe the cervix should be preserved whenever it is possible, for its anatomical value to the future comfort of the patient is unquestioned. I prefer the abdominal route in cases of procidentia, because the vagina in these cases is as much prolapsed as the uterus itself, and, further, for the reason that the prolapse is due to hypertrophy and relaxation of the vaginal walls, more, in some cases. than to disease of the uterus. Now, to cure procidentia of the vagina it is often necessary after its replacement to give it support from above by some form of suturing to the broad ligaments, or, maybe, to the abdominal wall. If the uterus is removed from below we lose that advantage. Further, the vagina is left shortened and too much narrowed, after the additional plastic operations, for the comfort of the patient if she be a married woman. So much for the general question.

If the case happened to be one such as these reported to-night —incarceration or strangulation coexisting—there are additional and vital reasons why the operation should be done from above. These I have already stated. Dr. Lainé gave as a reason why vaginal hysterectomy should be done in these cases that the uterus was outside of the vagina. Of course he did not mean that the uterus was outside of the vagina, but rather outside of the pelvis. It is inside of the inverted vagina, in a most unnatural position, and, when incarcerated, adhesions usually exist. Such cases can be managed safely by abdominal section only.

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DR. G. E. SHOEMAKER.—How would Dr. Baer get the uterus up from above if it could not be pushed up from below?

DR. BAER.—I hope there is no one here, at least, who would, after hearing the relation of these cases and this discussion, think for a moment that it would be proper to attempt to force the incarcerated, fixed uterus into the normal position. It would be a most unscientific practice—indeed, it would be a little beyond unscientific, it seems to me it would border on the barbarous, to blindly force replacement from below, when it is so easy, after abdominal section, to safely remove the obstruction, which might be intestinal adhesions or what not, and then elevate the uterus by gentle traction upon it, aided now by some pressure from below. In one of my cases there was an orange-sized ovarian tumor blocking the passage by adhesions so firm that it required many minutes of persistent effort to release it. The uterus was then brought up without the slightest difficulty. Dr. Shoemaker compared strangulation of the procident uterus to strangulated hernia. Would he attempt to reduce strangulated hernia without first removing the cause of the strangulation?

DR LAINÉ.—Such cases ought not to be classified together. I think this is a distinct condition. The operation here was to save the woman's life practically, and not to cure the procidentia. I cannot conceive the scientific point of an operation where the septic portion is pulled from below and dragged over the intestines.

DR. H. D. BEYEA.—I do not think Dr. Baer understands the treatment of this case. This woman was not under my care until five days after the primary attack, so that she was septic at the time she came in. She came in at night. I gave doses of calomel until her temperature reached normal the next day. I thought it advisable to replace the uterus if possible. So I made hot applications during the night and next morning, found it impossible, and decided to do operation by vaginal hysterectomy. It would have been impossible to pull this uterus up by abdominal wound. The hypertrophied tissue, the large bladder walls the size of a cocoanut, the rectum prolapsed with the posterior vaginal wall, would have made it impossible to reduce such a tumor, and I think the operation by the abdomen would have been difficult or almost impossible.

DR. J. M. BALDY.—Of course the two cases have considerable similarity, also some points of difference. In the first place, as far as my own case is concerned, in regard to Dr. Baer's statement as to the possibility of causing strangulation by attempting to return the mass, the original prolapse, it is an impossibility for the manipulation to have caused the strangulation, because I did not attempt to replace it. It was a prolapse that was down always when the woman was on her feet; she replaced it herself and never had any trouble. I saw no reason for pushing it back while she was on my operating table. I looked at her, saw her condition, and told her to go to the hospital. Dr. Baer asks why I waited a week and did not

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operate at once to remove the cause of ulceration—blood stasis. I had removed the cause of the ulceration by replacing the prolapse as soon as she came to the hospital. At the end of the week the ulceration had disappeared. I think it would be folly for me to have gone ahead and done the necessary plastic work in the face of the ulceration, when I had the patient under absolute control, and if there should be any return of prolapse and strangulation I could correct the trouble at once, and where I was present to operate if immediate necessity arose at any time. I thought the best plan was to wait. Personally I believe in doing prolapse operations complete at one sitting, although I am aware some operators prefer two sittings. After doing part of the work they will let the patient remain in bed two or three weeks and subsequently do the remainder of the work. I prefer doing it all at once.

As to Dr. Beyea's case, I do not see anything to criticise in his method of treatment. I think it was probably as good as many of us would have been apt to have adopted in the emergency. I do think if a case of that character fell into my hands now, after carefully considering what has been said and after seeing the result in this case. I would open the abdomen and attempt to reduce it. The comparison of strangulated hernia does not hold good. You are not dealing with anything swollen up with wind, which turns around and twists or kinks. You could very readily get hold of both broad ligaments with clamps and draw the uterus up hand over hand, as it were. If you succeeded in returning the uterus, then the rest would collapse and the retraction would be easy. It would simply be a matter of taking two or three successive holds on one or both broad ligaments. I should reduce it and do nothing more at that time. I should then treat my patient for septicemia. Why operate in a septic area in the presence of septicemia? Why operate in a gangrenous area in the presence of gangrene? The septicemia was caused by prolapsed uterus. The strangulated hernia and relief following reduction gives us a possible hint as to the course of the reduced prolapse, and I believe the reduction possible by the abdominal method; if necessary, by combined abdominal and vaginal manipulation. I simply offer this as a suggestion. I think probably this patient would have had a better chance than by the vaginal removal in the presence of the gangrenous condition; at the same time I believe that procedure is not to be condemned because of the rarity of the condition and the lack of recommendation or even knowledge on the subject. The case has taught us much, and we are all benefited by knowing of it.

DR. SHOEMAKER.—It seems to me extremely important to separate the classes of cases that have been brought here tonight. The treatment of the primary non-strangulated prolapse does not come in at all. Dr. Beyea reports a peculiar case which involves the protrusion of bladder, uterus, and vagina and part of recto-vaginal septum through the inferior strait, and subsequent swelling of these parts, with edema and

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beginning destruction by strangulation. It seems to me that this is exactly analogous to protrusion of omentum through umbilical hernia—its swelling and adhesion and infiltration and its final death. The death of the patient occurs in strangulated omental hernia quite as readily as death from strangulation of bowel. I would commend the wisdom of not opening the abdomen in this case, though the condition may have been hopeless in any event.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of October 6, 1897.

The President, C. J. CULLINGWORTH, M.D., *in the Chair.*

Specimens.—DR. MCCANN: Sarcoma of the cervix uteri. DR. ROBERT WISE: (1) Abortion sac, with hemorrhage into the fetal membranes; (2) Pregnant horn from the uterus of a cat. DR. JOHN PHILLIPS: Ruptured uterus, treated by intraperitoneal hysterectomy. The patient was in the sixth month of pregnancy and the breech presented. All attempts at artificial extraction under an anesthetic failed. Rupture occurred during the passage of the vertex. The laceration extended from the fundus to the level of the internal os uteri on the left side. On opening the abdomen several ounces of fluid blood escaped. The uterine arteries were tied and the torn uterus removed. The pedicle was treated intraperitoneally. The patient when last heard of, forty-eight hours after operation, was doing well.

MR. DORAN presented a paper

ON THE MANAGEMENT OF TRUE AND FALSE CAPSULES IN OVARIOTOMY.

The author distinguishes a false capsule formed of mesentery, omentum, or inflammatory deposit (Pawlik); a true anatomical capsule, which consists of the mesosalpinx alone; and a false anatomical capsule, where the lower part of the broad ligament, the parietal peritoneum, or the parametrium is involved. The management of the first variety is simply a question of breaking down adhesions. The treatment of the second and third is a less simple matter. The author discusses when a capsule should be cut away, when it should be let fall into the pelvis, and when it should be stitched to the lower end of the abdominal wound and drained. The first course should always be followed, if possible, when the capsule is healthy. The second is necessary when the base of the capsule is too broad to be made into a pedicle, or wherever for any other reasons no pedicle can be formed, the tissue of the capsule being

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healthy and hemorrhage under control. Fixation of the capsule and drainage is needed when hemorrhage under similar conditions is hard to control, and in all cases where the capsule shows advanced inflammatory changes associated with suppuration of the tumor. In the latter condition oozing of serum increases the danger of septic infection. A case is related where there was free general oozing from the capsule of a large suppurating cyst. The capsule was therefore fixed to the parietes and plugged with sterilized iodoform gauze, which was removed on the third day. Thus hemorrhage was stopped and sepsis averted. The author discusses the advantages and dangers of iodoform plugs. He also dwells on the prejudice of many surgeons against the practice of fixing the capsule to the wound. The danger of strangulation from a loop of intestine slipping beneath the capsule is theoretical.

DR. EDEN asked for a fuller explanation of the difference between the true and the false anatomical capsules. A pedunculated broad-ligament cyst opened up the mesosalpinx, but not the lower part of the broad ligament, which remained as the pedicle, and its capsule would therefore be, according to the author, a true anatomical capsule. But many broad-ligament cysts burrowed right down into the floor of the pelvis and possessed no pedicle. According to the author's classification the capsule of such a cyst would be true in its upper part and false in its lower part.

DR. HERMAN thought that the author had completely disposed of the theoretical objection to stitching the capsule to the wound.

DR. HERBERT SPENCER agreed with all the main points of the paper, but did not think that intestinal obstruction from adhesions of intestine to the stump in ovariotomy was a rare occurrence. These cases did not go to special hospitals, but the surgeons attached to general hospitals knew that this accident is far from being a rare cause of intestinal obstruction. Cases in which the intact sac could be stitched to the abdominal wall did well with the drainage tube; but cases in which the sac had been torn, or which could not be fixed to the wound, and suppurative cases, should be treated by gauze drainage. He had employed iodoform gauze for the last four years with very satisfactory results. In the last three years he had only once at a laparatomy used a drainage tube, and then it was unnecessary. He thought we had in this material an excellent means of checking hemorrhage, averting sepsis, and blocking out intestines from torn capsules and infected areas.

DR. EWEN MACLEAN remarked that in addition to those mentioned in Mr. Doran's paper, an ovarian tumor developed within a distending, a complete ovarian sac would present a true anatomical capsule of peritoneum which did not involve either the mesosalpinx or the lower portion of the broad ligament.

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MR. BUTLER-SMYTHE congratulated the author on having introduced such an interesting discussion. His usual practice with regard to treatment of capsules was as follows: All ordinary thin capsules would be tied and dropped into the pelvis. Where portions of the cyst wall were unavoidably left attached to the capsule, rendering it thick and likely to suppurate, the capsule would be stitched in the lower end of the wound and a glass tube inserted. In those rare cases where the broad ligaments had been enormously separated, and where adhesions had been formed high up in the abdomen previous to the enucleation of the tumor, and where a large bleeding surface was left exposed, the cavity would be plugged with iodoform gauze, which would be left in for three or four days. He had frequently seen cases of iodoform poisoning, and the first symptoms usually appeared about the fourth day and were unmistakable—rapid pulse, sudden rise of temperature, headache, giddiness, and, in bad cases, vomiting.

THE PRESIDENT expressed a general concurrence in the views advocated in the paper. With regard to gauze packing, he had not had a large personal experience. The removal of the gauze was so formidable a matter and was apt to produce so much distress, both bodily and mental, in the patient, that he had never had recourse to it unless he was compelled. At the same time he recognized its immense value in certain cases, as, for instance, in hemorrhage from vessels to which it was impossible to apply the ligature owing to their lying so deep in the pelvis.

MR. ALBAN DORAN observed in reply that he had discussed the anatomy of the subject at length in his article on "Capsules Real and False in Ovariotomy, with Notes of Six Cases," in the *British Medical Journal*, April, 1896; the complicated form of tumor of which the President and Dr. Eden had reported cases was Pawlik's cyst, where the broad ligament was not invaded by the new growth, but was adherent to it and stretched over its surface, the false capsule being completed by adherent omentum or mesentery. Mr. Doran was interested in Dr. Spencer's remarks on the frequency of intestinal obstruction caused by an old ovarian pedicle. He would like to know whether in most of these cases the raw surface of the pedicle had been left exposed or sewn over. He made a necropsy many years since on a case of obstruction where the operator had closed the raw surface by suture as a precaution against the very complication that occurred. Mr. Doran used the drainage tube much less now than formerly. But he found that patients did not object to it, whilst he agreed with the President that packing and abstracting iodoform gauze often gave them great annoyance. He maintained that a pulse of 144 or 156 in a case where Mikulicz's treatment was adopted, all other symptoms being favorable, clearly signified iodoform poisoning. In reference to Mr. Butler-Smythe's remarks, Mr. Doran referred to a case where he removed a large cystic myoma of the uterus. The pedicle, fixed by the serre-

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neud. was hard to keep dry, so it was freely treated with tannin and iodoform powder. The pulse became very rapid and did not fall until the powder was discontinued.

REVIEWS.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty volumes. Vol. XII. Pp. 850. New York: William Wood & Company, 1897.

This volume maintains the reputation for sound teaching which the series has established for itself. It opens with a section on "Insanity" by G. Fielding Blanford, Lecturer on Psychological Medicine at St. George's Hospital, London. This is followed by a discussion of "Idiocy" by Paul Sollier, Chief of Clinic and Adjunct for Mental Diseases at the University of Paris. Cesare Lombroso, the well-known professor of legal medicine and psychiatry at the University of Turin, supplies a characteristic essay on "Criminal Anthropology." "Old Age" and the best method of combating it is clearly treated by Boy-Teissier, Physician to the Hôpital Sainte Marguerite of Marseilles, while the last three hundred pages are occupied by Jules Comby, Physician-in-Chief to the Hôpital Trousseau of Paris, in an exposition of the "Diseases of Children" other than rachitis and those of infectious origin.

LA PRATIQUE DES ACCOUCHEMENTS: À L'USAGE DES SAGES-FEMMES. Par P. BUDIN, Accoucheur en chef de la Maternité, Professeur agrégé à la Faculté, Membre de l'Académie de Médecine de Paris; et E. CROUZAT, Professeur de Clinique d'Accouchement à la Faculté de Médecine de Toulouse. Second edition, enlarged and revised. With 127 illustrations. Pp. 814. Paris: Octave Doin, 1898.

The first edition appeared in 1891, and was founded upon a course of lectures delivered by the authors to the midwives of Paris. The new edition is a systematic manual, clearly written, and thorough in the treatment of its subject. While the majority of topics are considered quite fully, the obstetric operations are omitted, with the exception of an outline of artificial delivery of the placenta, tamponade of the vagina, and version, all of which the midwife is allowed to perform only in cases of emergency, when the aid of a physician is unobtainable. The same is true of the chapters devoted to the diseases of pregnancy, ectopic gestation, and abnormal labors, all but the temporary management of which is omitted, the object being

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merely to enable the midwife to recognize the necessity of calling a physician and to render what assistance is required in the meantime. It is noteworthy that the authors advise the delivery of the placenta by traction after waiting until it has separated from the uterine wall. If a portion remains adherent a ligature is passed around the membranes as high up as possible, and the portion below is removed with scissors. After several days the adherent fragment will have loosened and is to be brought away by gentle traction upon the ligature. Delivery of the placenta by expression is characterized as painful and liable to cause tearing and retention of the membranes. The principal changes in the second edition are found in the chapter relating to artificial feeding, in which the subject of sterilization of milk is discussed, and in the section devoted to legislation affecting midwives, a matter not unworthy of the attention of practitioners in this country. For the physician and student this work is a satisfactory manual of obstetrics. with the exception of the omission of operative procedures and of the treatment of diseases of pregnancy, difficult and abnormal labors, and ectopic pregnancies. Its aim is to aid the management of normal pregnancy and labor and the recognition of abnormalities. H. D.

THE CARE AND FEEDING OF CHILDREN. By L. EMMETT HOLT, M.D., Professor of Diseases of Children in the New York Polyclinic; Attending Physician to the Babies' Hospital and the Nursery and Child's Hospital, New York. Second edition, revised and enlarged. Pp. 104. New York: D. Appleton & Company, 1897.

This admirable little work is a manual for the use of nursery maids and mothers, arranged in the form of a catechism. The first edition was phenomenally successful, but it was found that fuller treatment was needed in several subjects—notably in infant feeding. The chapter on feeding has therefore been entirely rewritten and much new matter introduced, especially that relating to the preparation and use of cow's milk. Many other points relating to clothing, growth, and training have been enlarged upon, so that the size of the book has been considerably increased. The book discusses the needs of the well child, not the sick one, and can be confidently recommended.

THE HISTORY AND TECHNIQUE OF THE VAGINAL RADICAL OPERATION. By LEOPOLD and THEODORE LANDAU, of Berlin. Translated by B. L. EASTMAN, M.D., and ARTHUR E. GILES, M.D., B.Sc. Lond., M.R.C.P. Lond., F.R.C.S. Edin. Pp. 174. 47 illustrations. New York: William Wood & Company, 1898.

The book gives a very clear and practical description of the radical vaginal extirpation of uterus and appendages as practised by Landau, one of the enthusiastic supporters of the method. The method differs in many points of technique from that practised by the best operators in this country, but should

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be read by all who are not thoroughly posted in this field of surgery.

SKIN DISEASES OF CHILDREN. By GEORGE HENRY FOX, A.M., M.D., Clinical Professor of Diseases of the Skin, College of Physicians and Surgeons, New York; Physician to the New York Skin and Cancer Hospital, etc. With 12 photogravures and chromographic plates and 60 illustrations in the text. Pp. 166. New York: William Wood & Company, 1897.

This is a reprint of the admirable series of papers by Dr. FOX which appeared recently in this JOURNAL, with the addition of an extensive formulary. It is a concise and practical sketch of the symptomatology and treatment of the more usual skin troubles in children.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Spurious Abortion.—T. W. Eden[1] describes a case personally observed, and two reported by others, as representing a condition for which the term "spurious abortion" is suggested. It is "the development within the uterus, in the absence of uterine or extrauterine gestation, of a membrane having the essential characters of the decidua of pregnancy and accompanied by the signs of early pregnancy; and its separation and expulsion from the uterus, with hemorrhage, thus simulating an abortion."

The cases are not associated with hysteria; no ovum is present. The author's case had had seven pregnancies, the last about two years ago. Menstruation was perfectly regular up to December 6, 1896, and then there was a period of eleven weeks' amenorrhea. Hemorrhages then set in, and on the following day a fleshy mass was expelled; the bleeding ceased and the patient made an uninterrupted recovery. During the period of amenorrhea there had been morning sickness. Examination of the pelvic organs showed nothing abnormal, and there was nothing in the history to suggest the existence of extrauterine gestation; the patient recovered without a bad symptom and has since remained in good health. The "fleshy mass" was found to be a triangular cast of the uterus, measuring 4 inches in length by 3¾ inches across the base, and in thickness varying from 3 to 8 millimetres. The outer surface was rough and uneven, the inner dull, glistening, and thrown into numerous longitudinal folds. There was a good deal of interstitial hemorrhage at the apex of the cast, but not in other parts. No trace could be seen of placental tissue, placental site, or chorionic structures, although an exhaustive microscopic examination was made; the tissue was a decidual membrane.

Diagnosis of this condition is possible only after discharge of

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the membrane, and then demands the exclusion of uterine pregnancy by microscopic examination which fails to show chorionic tissues, and the exclusion of ectopic gestation. The explanations offered are two: 1. That an ovum was actually fertilized, but perished at a very early period without leaving traces of its presence, while the "genetic reaction" in the uterus and in the general organism progressed as in developing pregnancy. 2. That some stimulus other than the presence of a fertilized ovum in the genital tract may lead to the formation within the uterus of a complete decidua and may hold the menstrual functions in abeyance. It is known that scattered clusters of "decidual cells" may occur in the stroma of the endometrium in conditions other than pregnancy; but it has not been shown that a complete decidua may be formed and shed in such cases, and we are therefore thrown back upon the first supposition. Upon this view the ovum, if situated in the uterus, must have perished within the first fortnight, otherwise its site of implantation would have been discoverable. If situated in the tube it might possibly have developed somewhat further than this without giving rise to gross changes recognizable on palpation. It is clear, however, from the size of the cast in the second and third cases, that if this view be correct the uterine changes must have progressed considerably after the death of the ovum occurred; although, contrary to our experience of what occurs in "missed abortion," this is not impossible, and does not involve such large assumptions as in the case of the alternative theory just discussed. At present, therefore, we must regard "spurious abortion" as closely allied to "missed abortion," but differing from it so widely in the absence of an ovum as to require a special name.

Expulsion of the Decidua after Resorption of the Embryo.—Alexander[14] observed a case of abortion at the end of the second month in which the ovum was expelled *in toto*, but its cyst-like cavity contained only a clear fluid. Alexander believes that the embryo died about the third week and was resorbed, while its membranes continued to develop.

Inevitable Abortion.—H. P. Newman[15] believes that when the loss of the ovum is considered inevitable it is advisable to empty and cleanse the uterus at once by dilatation of the cervix and curettage with a moderately sharp instrument. He subsequently irrigates the uterus with bichloride and sterilized water, swabs it with pure carbolic or iodized phenol, irrigates with bichloride, and packs with iodoform gauze.

The Physiology of the Puerperium.—Brutzer[16] has carefully studied the material of the Breslau Maternity Hospital to decide the question whether prolonged rest in bed exerts a favorable or unfavorable influence upon the health and well-being of the woman. He examined the 974 cases as to pulse, temperature, general condition and involution of the genitals, and concluded that prolonged rest in bed is not desirable. He recommends that the puerpera should leave bed about the fifth day, contraindications of course being absent.

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Diagnosis of Early Pregnancy.—T. W. Eden [11] presents an interesting paper upon the diagnosis of early pregnancy, the signs of which he tabulates as follows: *End of second month:* Breast signs (important only in first pregnancy); softening of cervix; distension of fundus; Hegar's sign. *End of third month* (twelve weeks): Breast signs; bluing and softening of vaginal walls and cervix; uterus size of large orange; Hegar's sign; uterine contractions. *End of fourth month:* Breast signs; a suprapubic swelling; uterus size of fetal head; uterine contractions; ballottement; vaginal and cervical bluing and softening.

The uterine contractions referred to are of two kinds, rhythmic and irregular. The former show themselves in a gradual variation in consistence of the whole uterus; often they are so feeble that they only serve to render the outline of the uterus more distinct. The irregular contractions are much more easily detected, and form one of the most useful diagnostic points of a gravid uterus between the third and fourth months. They consist in tetanic contractions affecting localized areas of the uterine muscle while the greater part of the wall is unaltered. Their effect is to make the uterus feel irregular, both in shape and in consistence. Thus the greater part of the uterus may feel soft and cystic, while one or other cornu is occupied by a hard lump which may be regarded as a fibroid or ectopic gestation on first examination; or one lateral half may be hard and firmly contracted, and the other half soft and bulging; or there may be a mesial band of contraction hollowing out the fundus and anterior wall, while the sides are soft and unaltered. These contractions are not intermittent, but on a second examination, a few days later, the uterus may be found to be in every respect symmetrical or to have assumed some new deformity.

Use of the Hand in Obstetrics.—For diagnostic purposes M. McLean [12] advocates the introduction of the whole hand into the vagina. This permits instant appreciation of the width, softness, distensibility, etc., of the vagina, approximate measurement of the pelvic walls, detection of the existence of tumors, and estimation of the diameters of the straits by comparison with known measurements of the examining hand. A normal internal conjugate of 4 inches will just admit the hand with all the finger joints flexed except the metacarpophalangeal, the thumb being held firmly against the index finger; if the hand enters only when the fingers are completely extended the diameter is 3½ inches; if it is necessary to withdraw the thumb the dimension is 3 inches. The measurement through the middle joints of the index, middle, and ring fingers is 2½ inches. The longer diameters of the superior strait may be approximately estimated by abducting the thumb from the fingers in the first position described. The position and presentation can be accurately determined. If the former is occipito-posterior, it may be corrected by drawing down and rotating the head forward. If the cord is found around the

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neck and interfering with rotation, the author sometimes relieves this condition by reversing the direction of the head, so as to carry the occiput completely across the pelvis from one posterior plane to the opposite anterior, accompanying this with external manipulation of the body.

The Urine in Pregnancy.—Adolfo Liscia[11] and Ugo Passigli submit a table showing the result of their examinations of the urine of 37 cases, the patients being kept upon a mixed diet. They found that the amount and the density, compared with those of physiological urine, did not differ from the normal. Urea was diminished; the chlorides were present in normal amount; sulphuric acid and the phosphates were somewhat diminished; creatinin was increased; albuminuria was rarely met with, and sugar was never found before the eighth month of pregnancy.

Relation of Chronic Endometritis to Early Rupture of the Membranes in Labor.—Currie[12] states that his experience leads him to believe that the early rupture of the membranes during labor is often due to abnormal adhesions and development, the result of a chronic endometritis. In a chronic endometritis, the nutrition of the membranes being interfered with, they are much thinner than normal and more adherent. The abnormal adhesions between the membranes and uterine wall tend to cause early rupture.

Puerperal Infection.—C. J. C. O. Hastings[13] mentions the fact that elevations of temperature during the puerperium may be due to such causes as constipation, emotion, and intercurrent diseases, but he believes that, no matter how typical such conditions may be, they do not contraindicate the rendering of the parturient canal thoroughly aseptic. as there is a chance of the occurrence of both sepsis and other diseases together. The antepartum douche he reserves for cases with a pathological discharge. He advises postpartum cleansing of the entire parturient canal in all cases in which firm contraction does not occur after expulsion of the placenta, and in instrumental cases. Believing that complete drainage of the parturient canal is not provided in the recumbent position, Hastings has his patients sit up in bed after the second day to take their meals, and after the third day has them sufficiently propped up to secure a complete drainage of the vagina. He thinks it would be a perfectly rational treatment, in a very severe case, to draw off a quart of blood at a time, and at the same time inject about two quarts of artificial serum into the vein of the other arm.

A. L. Galabin[14] advises, as a prophylactic measure, the repair of perineal lacerations. and a single postpartum douche of biniodide of mercury, 1 in 4,000, where good nursing can be obtained or when the discharge becomes offensive or septic symptoms arise. If mercury cannot be used he favors 1 per cent creolin, or formalin 1 in 500 to 1,000. If sepsis occurs he employs uterine irrigation with bichloride or biniodide of mercury, 1 in 2,000 at first, 1 in 4,000 at the end of the douche.

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The curette may be used if irrigation does not lower the temperature within twenty-four hours. Antistreptococcic serum is considered next in value to local disinfection. If septic infection arises from an old affection, such as pyosalpinx or suppurating ovarian cyst, surgical treatment may be successful; but if suppurative peritonitis follows fresh infection through the genital canal the prospects are unfavorable. Probably the introduction of antistreptococcic serum into the abdominal cavity after irrigation may increase the chances of recovery.

Chas. Jewett[11] considers prophylaxis of first importance. When a pathological secretion exists he employs twice daily, for two or three weeks before labor, a 1:5000 bichloride or two per cent lactic acid douche. He sometimes dusts the vagina with subnitrate of bismuth in such cases. He advises against the introduction of the hand into the uterus after labor, and even considers it preferable to allow fragments of membrane which are wholly within the uterus to remain until spontaneously expelled. Vaginal tears should be closed, but the value of suturing the cervix at once is doubtful. Septic vaginal wounds should be cleansed daily and touched with iodine, fifty per cent carbolic, or chloride of zinc solution. They may be dusted with iodoform. Lacerations extending into the broad ligament should be cleansed and packed with iodoform gauze. The presence of decomposing blood clots or fragments of placenta or membranes calls for the immediate emptying of the cavity with the sharp curette, and irrigation before and after curetting. Extension to the parametrium demands still more urgently that the primary focus be relieved. In purely septic cases the uterine cavity may be painted with iodine, fifty per cent carbolic, or iodized phenol, and packed with iodoform gauze for twenty-four hours. Intrauterine irrigation is of little value except to wash away dead tissue in the uterine cavity, and when repeated is frequently injurious. It is permissible only when the temperature falls after it. Systemic measures include alcoholic stimulation, alimentation, use of tonics, diuretics, purgatives, abundant drinking water and fresh air. Cold bathing acts as a nerve tonic, increases oxidation, and favors elimination. The writer has used the serum treatment in 6 cases; in but one was there improvement. Nuclein injections have given indefinite results in 3 cases.

E. H. Grandin[12] states that when examination reveals putrid remains in the uterus the curette should be used; otherwise it is contraindicated. After curettage the uterine cavity is irrigated and packed with gauze. Iodoform gauze is not used, as it might cause toxic symptoms. In septic cases Grandin prefers a single irrigation with bichloride followed by packing with gauze soaked in alcohol. The great aim in septic puerperal diseases is to act before systemic infection is deep. If general septic peritonitis exists multiple incision, free irrigation, and extirpation of tubes and ovaries if affected, are indicated.

Extrauterine Pregnancy.—In an exceedingly interesting

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and scholarly paper Dührssen[13] describes 42 cases of tubal pregnancy and their operative treatment. In general, colpotomy is said to be the more preferable operation, but in a large number of cases this method is not suitable and abdominal section becomes necessary. If the tumor extends above the pelvic inlet abdominal section is advised; Dührssen performed the abdominal operation in 20 out of 43 cases. Colpotomy is a less formidable operation and rarely accompanied by shock, which is of a special importance in cases of extrauterine pregnancy where patients are often of lowered vitality and weakened from loss of blood. Besides this, recovery is more rapid; Dührssen discharged most of his cases between the eighth and eleventh days after the operation. The disadvantage of an abdominal scar, especially in fat women, is also well known. The technique does not differ much from previous descriptions. He recommends to bring adnexa into view by seizing them with forceps instead of making traction upon the ligatures. It is gratifying to note that vaginal fixation is less frequently advised. To avoid the complications of labor from adhesions between uterus and vagina, Dührssen now advises a separate closing of the abdominal cavity and the vaginal incision. The extirpation of the pregnant tube is advised in all cases of tubal pregnancy, if possible before the onset of alarming symptoms, also after death of the ovum. Dangerous hemorrhages may occur, and have been observed after the death of the ovum; thus he condemns the treatment with injections of morphine. As to the etiology of tubal pregnancy, he differs from Webster and Martin, who believe that tubal pregnancy can only occur in a healthy tube, while Dührssen considers gonorrheal disease to be the most frequent cause. Polypi of the tubes and puerperal atrophy are also mentioned as etiological factors.

Price[14] states that all cases of suspected pregnancy in women who have been sterile for a longer or shorter period should be carefully watched during the early months for symptoms of tubal pregnancy. In 175 cases of ectopic gestation which have come under his observation he has never seen any variety except that of tubal pregnancy. He is of the opinion that no matter at what period of gestation the woman is in, an end should be put to the pregnancy by surgical means. When the patient is in a state of collapse from hemorrhage, no matter what condition of collapse she is in, so she is not actually dead, the abdomen should be opened and the hemorrhage stopped. Five years ago Price operated on a case at term where both mother and child lived. In that case he used the open method of treatment, allowing the placenta to slough away, the wound being packed daily for thirty-five days. Although he had good results in the above case by this treatment, he believes it to be better to cut short the cord, remove all loose membranes and clots, and clean the face of the placenta, then close the wound, trusting to absorption, or, if symptoms indicate, a second operation later.

J. W. Bovée[15] states that the vaginal route is preferable in

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operating for ruptured tubal pregnancy when the hemorrhage has ceased or is slow, the escaped blood limited to the pelvic cavity, and especially if a limiting diaphragm has been formed above it. He believes that this route is freer from shock and less liable to infection; that it furnishes better drainage; that removal of the adnexa is often avoided; and that convalescence is shorter than after abdominal section.

A case of extrauterine pregnancy resulting in the delivery of a living child is recorded by Reismann. A IIIpara, 30 years old, during the third month of her present pregnancy suffered from syncope and fever. An examination showed symptoms of pregnancy and a large tumor adjoining the small uterus. This tumor contained a living child. Laparatomy was performed by Prof. Tauffer. The sac was posterior to the uterus; the placenta was adherent to the sacrum and Douglas pouch. A living child was delivered. Extirpation of the uterus and drainage per vaginam. The patient and child left the hospital fifty-eight days after the operation.

D. S. Fairchild [11] reports a case in which the existence of a pyosalpinx for several years obscured the diagnosis, when an exacerbation occurred and violent septic symptoms appeared. Operation revealed the coexistence of pelvic inflammation and pus formation with abdominal pregnancy. The onset of severe symptoms probably marked the escape of the products of conception from the tube and an accession of the pelvic inflammation. Death from exhaustion occurred.

Inversion of the Uterus.—Lea [4] reports the case of a young woman who aborted at four months and was confined to her bed for six weeks Two days after getting up she felt a lump in her vagina. This she kept back for two weeks with cloths. She was now seen by Dr. Bradley, who advised her to go to the hospital. On examination she was found to have a chronic inversion of the uterus. She was chloroformed, the cervix was steadied with volsella, and an attempt made to reduce the inversion by bimanual pressure, but without success. Seven days later she was given ether, volsella was used to steady cervix, and pressure was applied to the surface of uterus. Free incisions were made in the cervix, also longitudinal incisions were made in uterine mucous membrane; at the region of internal os the muscular coats were also divided. Hemorrhage was free, but not excessive, and tended to diminish size of uterus. Firm pressure was then applied and the reduction was accomplished. Inversion of uterus has occurred once out of 190,000 births at the Rotunda, and in Vienna not a single case was reported out of 250,000 births.

Swan [12] reports a case of recurrent inversion of the uterus. The uterus was easily replaced the first time without pain. The patient was allowed to get up at the end of two weeks, but in three hours the inversion recurred. It was again reduced and supported by a pessary, which slipped, allowing the uterus to come nearly out of the vagina. Finally a pyriform stem, 8½ inches long and 1 inch in diameter, attached to the cup

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of a McIntosh pessary, was worn for nearly two years, and subsequently the cup alone was used. In this article it is also stated that in 1,000 cases of inversion of the uterus found in literature not a single case of recurrence was reported.

Rupture of the Uterus.—Jurinka[11] reports 2 cases of rupture of the uterus during labor. In the first case brow presentation and a very large child necessitated a version The introduced hand encountered the contraction ring, and. in spite of the greatest care, the uterus was torn in bringing down the foot. Moderate hemorrhage and severe pain followed. Labor pains continued and the head gradually ascended above the navel. The woman was removed to the hospital. where the child, which in part had escaped into the abdominal cavity, was extracted per vias naturales. The hemorrhage being continuous and the wound torn and ragged, laparatomy was performed and the uterus extirpated. Recovery. The cause of the rupture was the excessive stretching of the contraction ring by the projecting occiput, and the existing hydramnion and the consequent thinning of the uterine walls. In the second case, a multipara, spontaneous rupture occurred during the height of a pain with membranes intact and cervix partly dilated. The symptoms of rupture became immediately apparent. The child escaped from the uterus through a tear in its anterior wall. Laparatomy and supravaginal amputation. Recovery. The cause of rupture was a weakened condition of the uterine wall and excessively strong labor pains.

Uterus Bicornis.—At a recent meeting of the Magdeburg Medical Society, Siedentopf[12] reported a hysterectomy of a uterus bicornis. The woman had been pregnant nine times; three children were born at full term,the other pregnancies terminating in premature labor or abortion. For years she has suffered from excessive menorrhagia producing marked anemia. Repeated curettement proved of no benefit. The woman's condition being really alarming, the uterus and adnexa were removed per vaginam. The patient rapidly regained her health. The extirpated uterus consisted of two cavities, separated by a septum extending to the internal os. At the fundus a depression could be seen. The endometrium of the right cavity was normal, while the left was the seat of a glandular endometritis. Siedentopf thinks it likely that only the right cavity had been scraped, this being the cause of its comparatively normal condition.

Central Rupture of the Perineum.—Liszt[13] observed in a primipara 20 years old, who had a normal pelvis and was in labor thirteen hours and a half, a swelling over the perineum about the size of a goose egg, which gradually became larger and ruptured two hours later. The child, which presented by the breech, was expelled through this opening, but the head had to be extracted. The frenulum and rectum were not injured; the wound was immediately united and healed per primam.

Motor Function of the Uterus.—J. H. Keiffer[14] is con-

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vinced that dilatation of the cervix is accomplished by vaginal contraction combined with contraction of the uterus, the bag of membranes aiding only by reflexly exciting the muscular tissue. He rejects the idea that it may act directly as a wedge. He further states that clinical research has led him to believe that the contraction ring of Bandl has no more morphological value in the lower segment of the puerperal uterus than any contractile ring behind a submucous polyp or the normal placenta in the uterus, or a peristaltic contraction behind a scybalous mass or foreign body within the intestine.

The Formation of the Intervillous Spaces.—Stroganowa[*] has carefully investigated a human ovum of an early period of pregnancy. The results of his observations are the following: At the end of the second or beginning of the third week the mucous membrane of the pregnant uterus divides itself into a compact and a glandular layer. At a still earlier period two types of decidual tissue can be recognized; one variety being mature and well developed, while the other resembles embryonal connective tissue. The elements forming the covering of the villi penetrate the decidua and erode the maternal blood vessels. This destruction of the vascular walls permits blood to enter the channels of the syncytium and Langhans' layer. Thus the intervillous spaces are due to a canalization of the syncytium and a disintegration of the syncytium and its cell layer.

Cervix Placenta.—Ahlfeld[*] denies the possibility that the ovum could engraft itself within the cervix, and consequently the possibility of a cervical placenta. The constriction often taken for the situation of the internal os is frequently the contraction ring, which lies quite a distance above the cervix. Thus the finding of the placenta inferiorly to this ring does not by any means prove an implantation of the placenta within the cervix.

Eventration after Pregnancy.—Doléris[*] discusses the treatment of eventration due to prolonged distension and weakening of the abdominal wall by pregnancy. It includes absolute rest in the recumbent position, tonics, cold douches, and an abdominal belt. If these fail the linea alba may be divided by a median incision and an elliptical portion resected, opening the sheaths of the recti, and a triple line of catgut sutures passed. The first unites the peritoneum and posterior parts of the sheaths; the second includes the muscles; the third joins the anterior lamellæ of the sheaths of the recti. An elliptical portion of the skin is then removed and the edges united by a suture of silkworm gut.

Hysteropexia and Pregnancy.—Emilio Boralevi[*] thus sums up an article in which he considers the effect of ventrofixation upon possible future pregnancies: 1. In cases of retroflexion in which the uterus is freely movable and no benefit has been derived from the use of the pessary or from Alexander's operation, and in the cases of fixed retroflexion which call for a surgical operation, ventrofixation is indicated as pos-

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sessing the following advantages: (*a*) In the present condition of surgical knowledge it is attended by no immediate dangers; (*b*) it restores the uterus to its normal position; (*c*) it is rarely followed by a relapse; (*d*) it rarely causes vesical disturbance; (*e*) it facilitates conception; (*f*) it allows of pregnancy reaching term; (*g*) it does not cause any complication during parturition. 2. Vaginofixation is not to be advised, because (*a*) relapses are more frequent than with ventrofixation; (*b*) it places the uterus in a pathological condition of anteflexion; (*c*) it readily induces disturbances of the bladder; (*d*) it interferes with conception; (*e*) it is liable to cause abortions; (*f*) it may expose the patient to serious dangers during labor.

Triple Pregnancy.—Lewis[9] reports a case of triple pregnancy in which two children were females and one a male. All were born alive, but none lived more than two weeks.

Cesarean Section.—Durner[10] saw a VIIpara, 29 years old, with a malacosteon pelvis and a conjugata vera 6½ centimetres. The patient was in labor three days. The os admitted two fingers. He removed the uterus after Porro and obtained a living child. The patient left the hospital eighteen days after the operation and regained her health.

Lipinski[11] reports a case of Cesarean section upon a primipara 20 years old with a conjugata vera of 6½ centimetres. The uterine wound was closed by three layers of sutures.

At a meeting of the Madgeburg Medical Society, Siedentopf[12] reported a case of Cesarean section in which, on account of existing sepsis, the whole uterus was removed. Both mother and child were saved.

Transverse Incision of the Fundus Uteri in conservative Cesarean section, as advocated by Fritsch, is discussed by Krauer,[13] who also reports two successful cases. Krauer states that he could verify all the advantages claimed by Fritsch.

Symphyseotomy followed Four Years Later by a Normal Delivery.—Hink[14] records a case of symphyseotomy performed by Schauta in a case of uniformly contracted pelvis, in which forceps had proved unsuccessful. After division of the symphysis delivery was easy. The symphysis was united by two silver sutures. Complete afebrile recovery. Four years later the woman entered the hospital during the first stage of labor. An examination showed separation of the symphysis of about one centimetre and a consequent increase of the transverse diameters. The delivery was perfectly normal, one pain sufficing to press the head into and through the pelvis. Immediately postpartum the symphysis was separated 2½ centimetres, while ten days later this distance had diminished to three-quarters of a centimetre. The other pelvic joints showed abnormal mobility, not marked enough, however, to interfere with the woman's household duties.

Labor in Contracted Vagina.—Poroschin[15] describes a case of labor in a woman 26 years old, who in consequence of a gonorrheal inflammation suffered from a vaginal stenosis of marked degree, the remaining opening barely permitting the

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introduction of a sound. Under anesthesia the obstruction was dilated with the finger; after this, forceps delivery. Tamponing of the vagina with iodoform gauze. The puerperium was normal. The vagina retained the normal calibre.

Extraction of the After-coming Head.—Rokitansky[10] again condemns the application of the forceps to the after-coming head and recommends manual extraction after the Mauriceau-Smellie method. He lost not a child in 170 cases of pelvic presentation.

Strangulation of Child at Full Term, Tympania Uteri, and the Emptying of an Echinococcus Cyst through the Puerperal Uterus.—Bodorden.[11] During two former deliveries a cystic tumor could be felt adjoining the uterus, forming an obstruction to delivery. Its size had to be diminished through a trocar; this was repeated in the present confinement. Some days prior to delivery the fetal movements suddenly ceased. When seen tympania uteri was found to be present. The cord was tightly wound around the neck of the child, causing its death by strangulation. The puerperium was complicated by fever and the constant discharge of echinococcus cysts. Final recovery and complete disappearance of the tumor.

Labor Obstructed by Ovarian Cyst.—Reynolds[12] reports a case in which he performed oöphorectomy during labor to relieve obstruction caused by an impacted ovarian cyst. He first tried gentle taxis without good results; then he opened the abdomen by a median incision and removed a tumor, about the size of a seven-months head, from the pouch of Douglas. The child was removed by forceps, its head first being perforated.

In the treatment of ovarian tumors obstructing labor he advises that gentle taxis be tried, the patient being in the knee-chest position; if necessary, etherize. If taxis is unsuccessful the first time it should be repeated after a lapse of one or two hours; but if this attempt fails, open the abdomen, and, under ordinary circumstances, the uterus should be incised and fetus removed. The tumor should be freed, unless the removal promises to be exceptionally difficult. When the adhesions are unusually strong in the pelvic cavity the removal of the tumor should be deferred to a subsequent operation. When it is probable that the patient has been infected with sepsis per vaginam, remove the tumor and let the child be extracted with forceps.

Septic Peritonitis.—Braun[13] reports a case occurring in a puerpera who was confined without a previous vaginal examination. Soon after delivery the woman complained of severe abdominal pains. These disappeared after the administration of morphine, and were thought to be after-pains. On the third day postpartum she had fever and a high pulse; other symptoms of peritonitis were absent. Laparatomy was performed, the cause of the peritonitis being thought to be torsion of a pedicle; this, however, was not the case. The abdominal cavity contained purulent fluid, but no tumor. The uterus was

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removed; extraperitoneal treatment of the stump. The patient succumbed after twenty-four hours.

The Transmission of Anthrax Bacilli from the Mother to the Fetus.—Branell and Davine have denied that anthrax bacilli could be transmitted to the fetus, but other observers arrived at different conclusions. Rostowzew[14] reports 3 cases of malignant pustule ending fatally, in all of which he could demonstrate the presence of anthrax bacilli in the placenta, cord, and other fetal organs. The latter appeared pale, which he ascribed to a degenerative process. Rostowzew's observation is not at all surprising, it being analogous to the transmission of pneumococci, tubercle, typhus, cholera, and other bacilli from mother to fetus.

Abscess of a Corpus Luteum was demonstrated by Fränkel[15] at a recent meeting of the Hamburg Medical Society. The abscess, or, as he terms it, cyst, contained fat granules and pus in which numerous gonococci were found. The latter observation makes it evident that gonorrhea may be the cause of these cysts. It also accounts for the numerous adhesions between the adnexa and the uterus, and the consequent difficult technique of the operation.

The Ovaries in Osteomalacia.—Ersilio Ferroni[16] reviews the various theories which have been brought forward to account for the causation of this disease, dwelling particularly upon those which attribute importance to the condition of the ovaries. Fehling, he says, held that osteomalacia was a reflex trophoneurosis of the osseous system originating in the ovaries, or, in other words, that it was due to increased functional activity of the ovaries, which, by giving rise to reflex mechanical stimulation of the vaso-dilator nerves of the bones, induced passive hyperemia and their more or less rapid absorption. This theory of Fehling's has induced many scientists to investigate the condition of the ovaries, with the result that a series of alterations has been found, consisting principally of a hyaline degeneration of the blood vessels. The writer himself carefully examined the ovaries of two patients, which confirmed the existence of this condition of degeneration; nevertheless he considers it to be a purely secondary lesion. An examination of the ovaries of a rachitic patient showed an exactly similar condition microscopically to that of the ovaries of patients suffering from osteomalacia, differing only in the fact that the changes were less marked.

A Specific for Puerperal Eclampsia.—Wright[17] advises the use of ice applications to head and carotids as a specific in controlling the convulsive seizures in puerperal eclampsia.

Walcher's Position.—Muzio Pazzi,[18] from a historical study of the subject, concludes that Melli in the eighteenth century first thought of and recommended the position in which the parturient woman lies upon the edge of the bed with the legs hanging over. The position should therefore be called by Melli's name. To Walcher belongs the credit of having discovered the practical advantages of this position in the mechan-

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ism of labor, not only for the fetus but also for the mother, and of having modified it by having the feet supported. To Küstner and to Fothergill we owe the explanation of the mechanism of production of increased pelvic diameters in the Melli position. On account of the clinical results obtained this position should be more widely adopted in labor. In a second pamphlet[11] the same author describes the various positions used in labor in olden times and at the present day in the various countries of the world.

La Torre[12] has always observed that the Walcher position aids the expulsion of the fetus.

Obstetrical Reports from the Budapest Maternity Hospital.—Backer[13]: The material during the year 1896 consisted of 951 cases, with a morbidity of 17.56 per cent and a mortality of 0.73 per cent. Strict disinfection of hands and instruments; upon the patients disinfectants are not used. Fever during the puerperium could always be traced to traumatism or the retention of secundines. Retained membranes are not removed except under urgent indications (hemorrhage or fever). Lacerations of the perineum occurred in 88 cases; of these 68 united per primam. Continuous catgut sutures were tried and found to be inferior to interrupted sutures of silk or silkworm gut. The following complications were observed: 15 twin labors, 1 hydramnion, 3 placenta previa, 55 abortions, 1 hydatid mole, 2 eclampsia, 8 prolapse of funis, 1 pulmonary edema, 1 acute intestinal obstruction, 1 cancer of the uterus, 1 fibroid tumor, 1 rupture of the uterus. Of 956 children, 33 were stillborn, 46 macerated.

GYNECOLOGY AND ABDOMINAL SURGERY.

Sources and Diagnosis of Pyuria.—According to H. A. Kelly[14] the urethra furnishes three possible sources of pus in the urine: (1) Skene's glands, in which it may be detected by pressing them up under the pubic arch and squeezing downward and outward; (2) a urethritis or urethral ulcer, in which a two-glass test shows pus in the first portion of urine passed and the second clear; (3) suburethral abscess. The vesical sources of pyuria are: (1) cystitis and trigonitis, (2) foreign body, (3) ulcer, all of which may be diagnosed by examination through a cylindrical cystoscope, with the patient in the knee-chest posture. It is particularly important to let air into the vagina before dilating the bladder. Extravesical sources of pyuria include inflammatory diseases of the Fallopian tubes, extrauterine pregnancy, acetabular or psoas abscess, abscess from the vermiform appendix, cystitis from intestinal fistula, and extension of carcinoma from the uterus. The presence of extravesical abscesses which have ruptured into the bladder may be shown by finding a red, mammillated, edematous mucosa surrounding the opening. The situation of a pus focus in the ureter or kidney may be discovered by inspection of the ureteral orifice, which will be intensely reddened, mammillated, or

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ulcerated; or by passing ureteral or renal catheters, this method showing the exact location of the infection in the upper urinary tract, whether in the ureter or kidney. If pus in the renal pelvis is too thick to flow through the catheter, it may be thinned by injecting boric-acid solution, and in some cases by manipulating the kidney between the hands. The nature of such a pyelitis must be determined by bacteriological examination of the pus, by investigation for a history of previous hydronephrosis, and examination for the presence of a calculus. If there is a stone in the kidney the catheter may bring down fragments; and if its end is covered with a mixture of dental wax and olive oil, the latter will be scratched by contact with the stone. When tubercle bacilli are found in urine taken from the upper urinary tract their source is usually the renal substance.

Relation of the Uterus to Descent of the Pelvic Floor and to General Prolapse.—Shoemaker[16] believes that a uterine prolapse is only a part of a vast hernia through the inferior pelvic strait; that in this hernia are involved the bladder, rectum, peritoneal pouches in front and behind the uterus, with or without bowel contents; also the muscles and fascia of the pelvic floor. These structures do not all descend to equal degree, but there is a gradual sliding in different planes. No operation dealing with uterus alone can stop this hernia, but an attempt should be made to restore the integrity of pelvic floor. He advises an operation within the vagina to endeavor to reach with stitches and take up the higher and deeper planes of pelvic fascia and muscles When the cervix is long and hypertrophied he states that amputation is of great help, as it is preceded by dissecting off the vagina from the cervix, while the method of sewing shortens the vagina, implanting it higher up on the uterus. He believes that uterine suspension should be done, but the main effort should be concentrated on the vagina.

Tuberculosis of the Tubes and Pelvic Peritoneum.—Hegar.[17] Tuberculosis of the tubes is generally accompanied by a tuberculous inflammation of the pelvic peritoneum. In the ascending form the infection originates from the feces of patients suffering from intestinal tuberculosis or the physician's fingers and instruments. It is doubtful whether the sperma of tuberculous patients is capable of spreading the infection. The descending form, which is the most prevalent, originates without exception from intestinal tuberculosis. Hegar states that the presence of nodules in the uterine end of the tube and Douglas' cul-de-sac, also in the paravaginal tissues, is a pathognomonic symptom of tuberculous salpingitis. In chronic cases an expectant plan of treatment is advised; in the recent and active form laparatomy and extirpation of the tubes are indicated.

Colpotomy for Chronic Inflammatory Diseases of the Adnexa.—To the 109 cases already reported by Landau, Mainzer[18] adds 91 new cases in which the uterus and its

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adnexa were removed per vaginam. The mortality was 4 per cent. In some of the cases the adhesions were so extensive that an abdominal operation could not have been successfully performed. Three cases which perished from secondary hemorrhage should serve as a warning and restrict the too frequent employment of this operation. The great advantages of the vaginal operation over abdominal section must certainly be admitted, there being less shock and diminished liability of infection; still the unbiassed reader may justly question whether in simple inflammation without the presence of pus the removal of the adnexa might not have been sufficient. Low mortality itself is a poor excuse for the wholesale unsexing of women. Sexual appetite and pleasure are but slightly diminished after the operation.

Louis Frank[15] argues in favor of conservation of the uterus when removing the appendages for septic disease.

J. C. Stinson[16] reports the successful treatment of bilateral ovarian cysts by excision with suture of the remaining portions of the ovaries.

Ruptured Pyosalpinx.—Fabricius[17] reports the rupture of a pyosalpinx and subsequent purulent peritonitis. In this case extrauterine pregnancy was suspected, for which laparatomy was performed. Upon opening the abdomen the latter was found to contain large quantities of putrid pus originating from a ruptured pyosalpinx. The *pregnant uterus* was covered with a pyogenic membrane. To facilitate drainage the abdominal wound was not sutured. The patient's serious condition necessitated the subsequent induction of premature labor. Slow recovery.

The Treatment of Endometritis with Lactic Acid.—Ilkewitsch.[18] The author's investigations show that irrigation of the vagina with a three per cent lactic-acid solution destroys saprophytes and pathologic micro-organisms. Thus it proves a most potent factor in the treatment of colpitis. Painting of the cervix with a fifty or one hundred per cent solution was found very effective in the treatment of endometritis with or without erosions.

P. Reynier[19] favors prolonged dilatation of the uterus followed by antiseptic douches, applications of creosote, and tamponade of the uterine cavity with iodoform gauze in cases of septic metritis. This treatment necessitates keeping the patient in bed for a month. For hemorrhagic metritis he has found electrolysis most efficient.

Vaginal Cystocele.—Arturo de Marsi[20] describes a new surgical process for the cure of this condition, the object of which is to restore the columnæ rugarum and to diminish the size of the vagina. It consists, in the first place, of a longitudinal incision of the mucosa and the submucous tissues of the anterior wall, which may extend from just below the urethral opening to the fornix, or which may be of less extent, according to the size of the colpocele; two small transverse incisions, one at each end of the longitudinal one, to form the flaps. The

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second step consists in the raising of the two quadrilateral flaps corresponding to the prolapsed portion. These are fastened together by separate stitches taken with strong, fine silk. The deep stitches are drawn together, and then a continuous suture is made of the free portion of the flaps. The author claims that by this method, when cicatrization is complete. we obtain a disappearance of the cystocele. a lasting diminution in the size of the vagina, and the formation of a strong longitudinal supporting septum (new anterior columna rugarum) composed of cicatricial connective tissue. and therefore possessing the power of retraction. somewhat yielding, and covered externally with mucous membrane.

Homosexuality in a Woman.—Looft.* A servant girl, 36 years old, even while going to school experienced perverted sexual ideas, she having a peculiar feeling of satisfaction in the company of other girls and an irresistible desire to fondle their genitals. After maturity she craved for cohabitation with females, the introduction of the finger into the vagina being followed by intra abdominal contractions and sexual gratification. The company of men aroused a sense of disgust, but she stated "that she would rather die than be deprived of the relationship with other women." While an inmate of an insane asylum she did not care to associate with "demented women." Ideas of persecution, fear, and insomnia were said to disappear after masturbation. The treatment consisted in bromides and hypnotism. proving, however, without result.

Pseudo-hermaphroditismus Masculinus Completus.—J. C. Carson and A. F. Hodlicka† describe a case of this malformation in which they noted a feminine tinge to the otherwise masculine form of the body, and a similar tinge of the mental characteristics of the subject; rudimentary penis, without hypospadias and without meatus; female-like urethra; complete cleft of the scrotum, with mucous-membrane-clad parts within; both testicles in the proper position; a fairly well-formed hymen and vagina, with probably very rudimentary internal female sexual organs.

Closure of the Abdominal Incision.—P. A. Harris‡ advises a modified Lembert absorbable suture for the peritoneum, absorbable interrupted suture for the aponeurosis, and a subcutaneous suture of silk.

Cold Abscess of the Abdominal Walls.—Under this head Michels§ describes three cases of chronic inflammation of the abdominal wall which were observed in Fritsch's clinic in Bonn. In the course of a few months a more or less circumscribed tumor developed in the abdominal wall. Pain, fever, and other subjective symptoms were absent; the skin was not reddened. The tumor consisted of inflammatory products, the centre being occupied by a cavity containing varying quantities of pus. Another constant observation was the existence of adhesions between the intestines and abdominal walls. Michels believes that the cause of the inflammation is an infection proceeding from a defect in the intestinal mucous membrane, the

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result of a traumatism or inflammatory process. In consequence of this local inflammation the gut becomes adherent to the abdominal wall, thus forming the bridge upon which the micro-organism can travel and enter the surrounding structures.

Extirpation of the Rectum per Vaginam.—Möller[45] describes a new operation which he performed successfully in 3 cases. Like Gersuny, he divides the sphincter and the posterior vaginal wall. His method is said to be superior to that of Kraske, the field of operation being always in plain view and easily accessible.

Perivaginitis Phlegmonosa Dissecans.[1]—Weber.[46] A woman 38 years old presented typhoid symptoms, also had a purulent bloody vaginal discharge. The vagina contained a large, freely movable gangrenous mass; this was removed and found to consist of the gangrenous vaginal wall and the cervix, forming a perfect tube about 12 centimetres in length. The typhoid symptoms disappeared after the removal of this mass. Three weeks later the vagina was covered with healthy epithelium.

Prolapse of the Female Urethra.—This is not so rare a complaint as commonly supposed. Wohlgemuth[11] collected 130 cases, 66 per cent of which occurred in children. Intense abdominal pressure is the most important etiological factor; thus we find it frequently during or after an attack of whooping cough. The most effective treatment consists in a cauterization of the prolapsed urethra with the Paquelin, as advised by Israel. The prolapse is cured by the resulting scar formation. One application generally suffices.

Utero-vesical Fistula.—Savor[9] reports one of these exceedingly rare cases. A IIpara 34 years old, with a contracted pelvis, had undergone conservative Cesarean section some years ago. Owing to faulty technique a silk ligature included both the uterine and vesical walls, causing a fistulous track connecting these organs. The fistula produced the formation of a calculus and a consequent cystitis, but the track itself gradually closed. Some years later the woman again became pregnant; premature labor was introduced at the end of the eighth month. Through this interference the fistula reopened, and the urine, gaining an entrance into the puerperal uterus, caused a septic process ending fatally. The literature contains only 2 other cases of utero-vesical fistula.

Vagino-perineal Lacerations.—J. A. Ouimet[9] urges the repair of all vagino-perineal lacerations, however small, by immediate or secondary perineorrhaphy.

Digital Exploration of the Uterus.—H. Banga[9] considers dilatation of the cervical canal by means of the laminaria tent a safe procedure in preparing for a digital examination. This should always be done when any foreign body is suspected of being in the uterus, and in uterine troubles in which hemorrhage is the chief symptom.

Organo-therapy.—Kleinwächter[49] describes 5 cases of uterine fibroids, 1 cancer of the uterus, and 1 of dysmenorrhea

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that were treated with animal extracts. The first 6 cases received thyroid tablets, while the case of dysmenorrhea was treated with ovarian substance. The treatment did not produce bad subjective symptoms, but also no special improvement. Only the bleeding from fibroid tumors seems to be favorably influenced. Kleinwächter noted good results from the administration of ovarian tablets in the treatment of flushes and other vasomotor disturbances after the extirpation of the ovaries.

The After-treatment of Laparatomy.—Bodon [11] recommends four-hourly taking of pulse and temperature; enemata of wine or cognac if the pulse is rapid. On the day of operation the patient receives only hot water (40° C.). On the second day, if there is no vomiting, bouillon, beef tea, tea and milk. On the third day he allows soup with egg, scraped meat, fish, or chicken. Active intestinal peristalsis is of great advantage; it is therefore advisable not to starve the patients. To facilitate the discharge of wind a rectal tube is introduced eight hours after the operation. On the third day the patient receives an injection of soap and water. Dressing is changed from the tenth to the twelfth day, at which time the sutures are removed. After two weeks the patients are permitted to leave the bed for a few hours. Vomiting is best combated by the administration of hot water. If the vomiting persists, nothing is administered per orem and the patient is nourished per rectum. Thirst is best relieved by small quantities of hot water. The administration of ice is not favored. If the vitality is very low, saline infusions or enemata are highly recommended. The administration of morphine is condemned; it is uncertain in relieving the vomiting and interferes with the active intestinal peristalsis. Against shock the following precautions are advised: The temperature of the operating room should be about 19° R.; heating of operating table, covering of the patient with warm and *dry* cloth, deep anesthesia, avoidance of injury to or an undue handling of the intestines, Trendelenburg position. Disinfection of the intestinal tract is the best prophylaxis against peritonitis, which is often caused by the colon bacillus. If peritonitis occurs the abdominal cavity must be opened and followed by a thorough irrigation with sterilized water. Antiseptics should not be used in the abdominal cavity; they lower, without exception, the intestinal vitality and predispose to adhesions. To avoid hernia an incision through the substance of the rectus muscle is advised. The different structures forming the abdominal wall should be separately united.

Peritoneal Adhesions after Laparatomy.—Uhlmann.[12] Walthard and Sänger recommend moist asepsis to diminish the frequency and severity of post-operative peritonitis. Uhlmann investigated both this and dry asepsis in the Leipzig Hospital for Women. The results of these cases were as follows: Antiseptic treatment 246 cases, mortality from post-operative peritonitis 2.44 per cent; dry aseptic treatment 481 cases, mortality 0.6 per cent; moist aseptic treatment, 80

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cases, mortality 1.25 per cent. These observations, which are discussed in detail, led to the conclusion that the dry aseptic method is the most advantageous one.

Laparatomy repeatedly performed upon the same Patient.—During the last ten years 1,819 laparatomies were performed in A. Martin's private hospital. Of these 2.5 per cent required a second operation Velits figures the mortality after repeated laparatomy to be 19 per cent, while the 65 cases of Martin show a mortality of only 8.77 per cent. (in 3 cases laparatomy three times and in 2 four times). Thus Kreisch,[13] who reports these statistics from Martin's clinic, concludes that the prognosis in secondary laparatomy is hardly more serious than in the primary operation.

Bacteriology of Syphilis.—Van Niessen.[14] The etiology of syphilis is the subject of a careful investigation, the author's effort being directed to a discovery of its possible bacteriological origin. According to Van Niessen there are three different forms of syphilis—the coccogenic, bacillic, and the mycotic. Sometimes two varieties coexist in the form of a mixed infection. The essay contains a minute description of the various micro-organisms found.

Septic Polyneuritis.—Kraus.[15] Cases of polyneuritis of septic origin are rare. The case observed by Kraus was a woman 25 years old, who complained of pain and swelling in the various joints, which were not benefited by an administration of sodium salicylate. A vaginal discharge was present containing gonococci. Quite severe chills appeared after every vaginal exploration. In the further progress of the case there was paralysis of both lower extremities, the afflicted muscles not reacting to the faradic current. There was also a disturbed sensation below the knee. In this case the sepsis undoubtedly had its origin in the genitals. During the puerperium this type of infection is not so very infrequent. Its prognosis is, as a rule, quite favorable.

Successful Removal of an Enormous Mesenteric Tumor and nearly Eight Feet of Intestines.—F. J. Shepherd[16] reports a case in which he removed a large mesenteric tumor and over seven feet of intestines. After removal of the tumor, which was attached to three feet of small intestine and part of the transverse colon, the ends of the intestine were fastened together by a continuous suture of fine silk. Shepherd also refers to thirteen other cases in which portions of intestines were removed with good results. His patient was out in one month.

Some Pelvic Abnormalities.—Withrow[17] reports 4 cases of abnormality. One case, that of a young woman, had no vagina, uterus, or Fallopian tubes. The skin was stretched smoothly from the meatus to the anus. She had monthly attacks of abdominal pain and intense flushing of face and fulness of the head. Another case, that of a colored woman, showed a perfect vagina but no indications of uterus, ovaries, or tubes. A third woman had only a cul-de-sac, about half an inch deep, in

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place of a vagina; ovaries and uterus could not be palpated. A fourth woman had a double vagina and uterus.

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DISEASES OF CHILDREN.

Ambulant Method, The, in Fracture of the Leg in Children.—James Porter Fiske[1] says that a method which admits of a child with a broken leg being up and about during the first week, and by so doing not only tends to preserve the general condition of the patient, but "promotes a healthy and rapid union of the fragments" (Hartley), should commend itself to all. The author favors the use of the ambulant plaster-of-Paris cast, requiring as it does only a few ordinary roller bandages and a few plaster bandages properly applied. The earlier it can be applied the better. It is put on as follows: After reduction of any deformity the limb is held by an assistant, the foot being flexed to a right angle, and the foot and leg are bandaged with a muslin roller from the toe-tips to and surrounding the tuberosity of the tibia. Over the muslin roller the plaster bandages are applied in the same manner, building it more strongly about the ankle and also at its superior circumference, where in walking it largely supports the weight of the body. No padding is used, the splint exerting pressure at all points. It has been thought that as the tuberosity of the tibia is not

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developed to the extent of adult life, the ambulant cast is not applicable to children. This view, the author claims, is erroneous, he having successfully applied it at all ages and in various conditions, not only in fractures of the leg, but in tubercular disease of the ankle joint, after clubfoot operations, and after operations about the ankle joint, including resection of the joint, and also in osteotomy cases involving both tibia and fibula. The patient walks on the injured limb without the aid of crutches, the weight of the body being transmitted from the tuberosity of the tibia to the upper circumference of the plaster cast. The advantages of the treatment are that the patient is kept up and about, less muscular atrophy occurs, there is less stiffness of adjacent joints, the period of after-treatment is considerably shortened, and the general health of the patient is maintained.

Chorea.—Francis B. Bishop[8] uses electricity in the treatment of this disease. This treatment, he says, is based upon the hypothesis of an unstable condition of the motor, sensory, and very often psychic centres of the cortex, and that the perfect, harmonious, and healthy action of these centres is distorted and inco-ordinate in consequence of some severe shock or some poisons, and that they become so weakened thereby that they are often thoroughly incapable of themselves of throwing off the spell that binds them; and that the gentle galvanic current passed through these centres stimulates them and aids them in their efforts to physiologic action. The static cage gently stimulates the periphery and is very soothing to the general nervous system; while the inhalation of the ozone permeates every tissue, supplying oxygen to the impoverished blood corpuscles, thereby giving new life to all the tissues of the body, including the nerve centres themselves. The static spark, of course, is not used unless there is considerable loss of sensation, and in that case there is nothing else that will restore it so completely.

Charles W. Burr[9] reports a case of chorea with acute delirium occurring in the course of scarlatinal Bright's disease. The delirium he believes to have been due to the kidney trouble. As to the chorea the causation is obscure. While it may occur after all the infectious diseases, it rarely follows scarlatina. It rarely occurs in Bright's disease. It may possibly be the result of many influences—some physical, as microbic poisons, others purely psychical, as fright.

Defective Development in Children.—Louis Faugères Bishop[1] says that too long has the treatment of the defectively developed mind been postponed beyond the age of infancy, and often are individuals thus affected relegated to the hopelessly idiotic group without a careful study of the possibilities of each. A slight defect in hearing or eyesight in a young child will influence and retard development in a marked degree. Curiously enough, however, some of the children who on careful examination prove to be markedly defective have every appearance of being the brightest children. One of the saddest things

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that can happen to a defective child is that he should be placed under the educational influences of a large school in competition with children of normal abilities. He drops further and further behind, until finally he is associated with children much younger than himself; this breeds discouragement, recklessness as to behavior, and mortification of spirit, or callousness. The defective child must be taught many things that in others come from observation and example; it is with great difficulty taught the care of its clothing and the minor civilities of life that to a bright child come almost without teaching. More difficult and more serious even than the development of the mind is the development of character. The defective child is unable to subdue its own personality and unable to recognize the authority of others Severity is wrong in its treatment. The most rational way is to disregard as much as possible all previous acts and perversities of temper, and, by constructive efforts in the direction of those abilities and faculties that the child has, to counteract the evil tendencies.

Diarrhea, Acute Summer.—Cohn[4] studied the milk, the bottles, and the artificial food of a number of infants during several years, and finds that even where the food is in good condition and unchanged, as in breast-fed babies, the heat of summer may disturb the digestion of infants in some unknown way, and this must be considered as a factor in the etiology of diarrheas in artificially fed children during the summer months.

Diazo-reaction in Urine of Nurslings.—Umikoff[5] has made extensive studies with the urine of nurslings and concludes that the diazo-reaction never occurs in normal urine. High body temperature does not influence the appearance of the reaction; in acute and chronic catarrhal pneumonia the reaction does not occur. Diphtheria, varicella, otitis, coryza, lymphadenitis, omphalitis, bronchitis, pleuritis, gastro-enteritis, colitis, syphilis, eczema, erythema, do not favor the development of the reaction. Erysipelas and measles give the reaction almost invariably; it persists until death in fatal cases, but diminishes in favorable cases when the disease begins to improve. In the large majority of cases approaching death, no matter from what disease, the diazo-reaction appears in the urine a day or two before the end; rarely it occurs during the prodromal stage, and it is a factor to be considered when making a prognosis, as its intensity must always be an indication that a fatal outcome may occur.

Diet in the Febrile Diseases of Children.—In an editorial[6] the importance of the subject of feeding in fevers is dwelt on. Three errors are common in the feeding of sick children—too frequent feeding and the administration of too much and of too rich food. The digestive powers are diminished by fever even more in children than in adults. It is a mistake to give milk every few minutes. It should be diluted and peptonized if necessary. Beef broth, mutton broth, beef juice, wine whey, and oatmeal or barley gruel are next in importance to milk, and should be given in amounts suitable to the age of the child, and,

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except when indicated for short intervals, the frequency of their administration should rarely be less than two hours.

Diphtheria.—Augustus Caillé,[8] in an interesting article upon the modern management of diphtheria and croup cases, speaks of the difficulty, recognized by Dr. A. Jacobi more than thirty years ago, of distinguishing between follicular tonsillitis and diphtheria. What looks like a tonsillitis to-day may be a virulent diphtheria to-morrow; such cases should be isolated and treated as diphtheria. In the prophylaxis of the disease the author lays stress upon the fact that the proper management of the nasopharynx in children and adults is one of the most important subjects in practical medicine. The nasopharynx is the usual seat of entrance of diphtheria; chronic nasal catarrh, adenoid vegetations, enlarged tonsils, and carious teeth favor diphtheria infection; in the absence of such conditions the instillation of a weak salt or alkaline solution into the nose morning and evening will prevent diphtheria in those exposed or prone to contract it. The nasopharyngeal toilet, as advised by the author, consists in the instillation into each nostril, by means of an ordinary teaspoon, of a spoonful of salt water 1 per cent, boric-acid water 2 per cent, or listerine in water 10 per cent, morning and evening, as the children lie on their backs with nose tilted up and mouth open. The liquid does not wash through at once; some of it remains in the various recesses of the nasal cavity and is eventually sneezed out or swallowed. In this way putrescible matter and bacteria are washed away (mechanical antisepsis). Where additional chemical antiseptic action is desired, a 1 : 5000 mercuric bichloride solution, or Labarraque's solution 10 per cent, or a rose-colored permanganate of potash solution should be employed. Specific and direct immunity is secured for those exposed to diphtheria by means of antitoxin. The period of immunity varies from three to six weeks, which is sufficient for all practical purposes in times of epidemic or house infection. The immunizing dose is 200 units.

Treatment is by antitoxin. To combat the disease it is indicated in doses of from 1,000 to 2,000 units. It should be employed at the earliest possible moment and the dose repeated the following day and subsequently as often as is necessary. Caillé has given 10,000 units in one week to a child nine months old and has seen no ill results. The injections are made in any region where a fold of skin can be picked up. The skin, the hands of the physician, and the syringe must be *clean*. The writer also injects a curative dose of antitoxin in every case of scarlet fever coming under his notice, and it may also be given in measles and whooping cough if the throat shows the slightest appearance of a pseudo-membranous patch. The local supplementary treatment of diphtheria must be mild. Swabbing the throat is harmful and should not be practised. Solutions used as gargles do not reach the nasopharynx; the spray is only to be employed in cases in which force need not be used. The best way to cleanse the nasopharynx is to pour the liquid into the nose from a spoon; if the nose is partly or almost com-

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pletely stopped up, a blunt piston syringe, or a Davidson's or a fountain syringe, must be employed. In septic cases the irrigation is best done as the children lie on the side, in order to avoid any sudden strain or collapse. Instillation may be done every hour or two, and, if necessary, day and night according to the severity of the case. If syringes are used the stream should be directed horizontally and not upward. Syringes should not be used if bleeding follows each irrigation. The following liquids may be employed: permanganate of potash, rose-colored aqueous solution; mercuric bichloride in water, 1 : 10,000; listerine, 1 : 10; salt water, teaspoonful to pint; lime water; alum water, 5 per cent; Labarraque's solution in water, 1 : 20. Peroxide of hydrogen has shown itself to be an active irritant and aids the spread of diphtheria. Excoriations at the angles of the mouth usually heal under camphor ice.

The writer gives the treatment of the various complications which may occur. As to medication, essence of pepsin with dilute muriatic acid may be given, and in septic cases five drops of the tincture of chloride of iron may be given every four hours. As stimulants, whiskey, American Tokay, champagne, coffee; strychnine, one-fiftieth of a grain three times a day; benzoate of sodium and caffeine, dose one to three grains, also subcutaneously dissolved in water; camphorated oil and ether, equal parts, five to fifteen drops subcutaneously. High temperature can be reduced by cold and lukewarm tub and sponge baths. One or two doses of an antipyretic drug in twenty-four hours, particularly at night, are serviceable; three to ten grains of phenacetin with one-half grain of caffeine, or lactophenin with caffeine in the same dose, may be given. Antipyrin is a safe antipyretic. In cases of incessant vomiting all internal medication should be stopped and one to two drops of tincture of iodine in sweetened peppermint water may be given every hour or two, or the stomach may be washed out. Diarrhea may be checked by a diet of burnt-flour gruel or cornstarch pap, omitting milk food for a time. Should this not suffice, five grains of tannic acid with chocolate, or a half-grain of camphor with one-fifth grain of Dover's powder, or half a grain of acetate of lead with sugar of milk, will be found efficacious. In albuminuria and nephritis a stiff dose of calomel and jalap and one or two warm baths a day will be the treatment. For convulsions an enema, a warm bath, hydrate of chloral three grains, and potassium bromide five grains are indicated. Glycerin and water, equal parts, applied with a brush, affords relief to a dry tongue. Pseudo-membranous conjunctivitis readily yields to ice compresses and the boric-acid spray. In otitis media the ear should be cleansed with mercuric bichloride solution 1 : 5000, or a warm boric-acid solution with cocaine, or menthol in sweet almond oil (one to four drachms). In hemorrhage from sloughing of the tissues the bleeding point should, if possible, be located by means of a strong light and directly cauterized with the actual cautery, lunar caustic, chloride of zinc, alum solution, or antipyrin and tannin. Phlegmon and indura-

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tion of the tissues of the neck, with indistinct fluctuation of cervical lymph nodes, are best managed by a large incision through the entire dense and thick skin down to the glands. Paralysis of the soft palate and temporary locomotor ataxia require fresh air, baths, massage, the interrupted current, and one-fiftieth grain of strychnine three times a day. The author gives the suitable dietary for cases of diphtheria.

He also enters at length into a discussion of croup and its treatment. The best treatment may be summed up in one word—antitoxin. The report of the American Pediatric Society says: Before the use of antitoxin 27 per cent of intubation cases recovered; now 73 per cent recover. Sixty per cent of stenosis cases do not require operation if antitoxin be used in time, and an early use of antitoxin will lower the mortality of intubation cases still more. Intubation, tracheotomy, and disinfection of the sick-room are thoroughly discussed. H. A. Brennecke,[7] in a statistical report of diphtheria cases treated with antitoxin in the Cook County Hospital, Chicago, from July, 1895, to February, 1897, states that according to the various statistics the mortality of diphtheria before the use of the serum is placed at about 40 per cent. Since the serum has been used at the hospital the mortality, as shown by tables submitted, has been reduced to 12.4 per cent.

Wray Grayson[8] reports a number of cases treated with antitoxin and discusses the question of its use. He uses the remedy in only grave cases, or those that have threatened to become so. Some, he says, advocate the use of antitoxin in all cases, and even go so far as to recommend it to the exclusion of other medication in the treatment of diphtheria; but this does not appear to be indorsed by the profession generally. Judging from its success as an immunizing agent, it is a fair inference that its earlier use might be profitably instituted, and that by so doing grave toxemia may be prevented, thus avoiding serious if not fatal complications. So far as his own observation has gone, the writer is satisfied for the present to follow the more conservative course, feeling well convinced that with carefully watching a case orrhotherapy could be instituted, at the proper time, with a good prospect of success. He thinks the time may come when, by the efforts of science in the line of immunization, diphtheria, like small-pox, may be successfully antagonized. Hilbert[9] has studied 9 cases of mixed infection occurring in children, and has made animal experiments with the bacteria obtained from them. He believes that streptococci not only favor the growth of diphtheria bacilli, but increase the production of diphtheria toxins. Furthermore, the streptococci increase the virulence of the diphtheria bacilli, while the diphtheria bacilli also increase the virulence of the streptococci. It is necessary, therefore, to use the serum injections early in the disease, before the streptococci have time to do their work.

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Without wishing to underrate the benefits to be derived from the use of antitoxin, John H. Coughlin[8] writes in order to direct attention to other methods used in the treatment of diphtheria. He lays emphasis upon diet, condemns the use of alcohol in any but very cautious doses, recommends certain local applications for appropriate cases, speaks of constitutional treatment, recommending the tinctura ferri chloridi, and quotes twelve cases in which the clinical diagnosis was confirmed by bacterial cultures made by the New York City Board of Health, all of which recovered without the use of antitoxin, alcohol being given in small amount in two cases only

In discussing the post-diphtheritic palsy and the antitoxin, Joseph McFarland[9] states that it is a correct scientific statement to say that the diphtheritic palsy follows the toxic cases, and is mild or severe according to the amount of toxin that is absorbed. The amount of membrane that forms in the throat is no index of the amount of toxin that is to be absorbed, and, therefore, of the probability of the occurrence of palsy or of the severity of the palsy that is anticipated. The membrane is formed alike by distinctly toxic and mildly toxic bacilli, and its extent is dependent solely upon the vegetative powers of the bacillus. It seems to be true that when the bacillus causing the lesion is extremely virulent, much more toxin can be absorbed from an insignificantly small patch of membrane than from a large patch produced by a mildly virulent bacillus. Palsy is not a result of the antitoxin, yet palsy is more common in cases in which the injection has been resorted to. It is because the patient lives that he has palsy. Without the antitoxin he would have died on account of the virulence of the toxin absorbed.

Empyema in Childhood, Treatment of.—Levy[10] has collected statistics of reported cases treated by resection of a rib and those treated by drainage. He also reports upon 54 cases treated in the Frankfort clinic by means of resection. Of these 27 were cured, 19 died, and 8 were lost sight of. The average length of time required for a cure was 58 days.

Gaertner-Mother-Milk, The Clinical Value and Chemical Results of Using.—Louis Fischer[11] and Herman Poole, in an extensive article upon this subject, say that Prof. Gaertner, in the preparation of his food, has aimed to overcome what has been the great difficulty in infant feeding—namely, to reduce the excess of casein by a scientific process without the aid of chemicals. To achieve this result he employs a machine called a separator or Pfanhauser centrifuge. A number of cases are cited in which the small amount of proteid matter contained in the milk appeared to be very easily assimilated. In these cases the sick infants were able to retain this form of nourishment after other forms of feeding had to be rejected. The assimilation of this form of food is equal to that of any other modified milk, judging from the stools. The German journals assert that rickets and scurvy can be prevented by using this milk. The milk used in feeding the children

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contained the following: fat, 3.05 per cent; casein, 2.69 per cent; milk sugar, 6 per cent; specific gravity, 1.0275. Reaction faintly alkaline. Each can contained one-third of a litre, or 20.34 cubic inches, and weighed nearly 9½ ounces. Of this there was: fat, 0.289 ounce; casein, 0.198 ounce; milk sugar, 0.589 ounce; total, 1.056 ounces. Each child consumed from 3 to 4 cans of the milk per day. Complete tables are included in the article, showing the analysis of the feces.

Infantile Spinal Paralysis.—Stewart L. McCurdy[11] writes that this condition has also been described under the heads of poliomyelitis, teething palsy, etc. It is characterized by a sudden development of paralysis of muscles or groups of muscles, of one or all extremities, following an acute febrile attack, frequently followed by convulsions and followed by deformity. The causes have been enumerated as exposure to cold or heat, sudden changes in temperature, sitting on cold or wet places, falls, etc.; but in the majority of cases no cause can be found. The disease is divided into three stages: (1) Acute or initiatory, during which time the patient suffers with high temperature, possibly convulsions coming on during the night which last for a day or so. (2) Stage of paralysis immediately following the acute attack, during which time the paralysis is greatest. There is also some improvement during this stage, and certain muscles may completely recover their power. It extends over a period of a few days to a few months. (3) This is known as the stage of retrogression, during which time some of the muscles regain some of their power and others are found completely paralyzed and remain permanently so. It is during this stage that the deformity begins, and without preventive treatment grows progressively worse. Diagnosis is not easy in the first and second stages, but is usually not difficult in the third. The treatment is as follows: (1) Preventives of deformity (medicine, electricity, gymnastics, massage, and braces) if seen early. (2) Correctives, by mechanical screw, spring, or other brace, or operative (*brisement forcé*, tenotomies and tenorrhaphy, and osteotomies). (3) Retentives, temporary (braces, plaster-of-Paris) or permanent (ankylosis secured by operation or by injection).

Laparatomy in Tubercular Peritonitis.—Monti[4] has treated 21 cases during the last four and one-half years, and classifies them as follows: (1) Cases of miliary tubercles in the peritoneum with serous exudate, but no lesions in intestines or mesenteric glands. Of these 9 were observed: 6 operated upon with curative results, while 2 others were cured by internal medication and 1 was improved. (2) Cases of miliary tubercles in the peritoneum, serous exudate, and hyperplasia of the mesenteric lymph nodes. One such was observed, operated upon and apparently cured. He was lost sight of. (3) Cases without ascites, but with marked intestinal adhesions. Of these 7 were observed and 1 operated upon, but with fatal result. The others were not considered proper subjects for laparatomy and were treated with drugs and irrigations; 3 were improved, 3

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not. (4) Cases with involvement of the mesenteric glands in addition to the intestinal adhesions. Of the 4 observed 2 died after laparatomy and 2 after internal treatment. It would seem, then, that laparatomy is of real value only in the cases with marked serous exudate, and even here relapses or spreading of tuberculous foci in other organs must not be lost sight of. It is possible that a modification of the operation will be found to be valuable in the other forms of tuberculous peritonitis.

Rosenberger [18] reports a case in a girl 9 years old, of tuberculous family, whose illness was of two months' duration. Operation evacuated about four litres of fluid, and showed tubercles on the parietal peritoneum and on the greater omentum, but nowhere any adhesions. She recovered rapidly, and when seen one year later was apparently in excellent health, having gained in weight and stature.

Laryngeal Tumors removed by Laryngofission.—Paunz[19] reports two cases, occurring in girls of 5 and 2 years old respectively. Both were cases of papilloma. In the elder child complete cure was effected; in the younger marked improvement followed the operation.

Lumbar Puncture, Therapeutic and Diagnostic Value of.—Monti [4] found the procedure valueless in cases of tuberculous meningitis, but of diagnostic significance in acute cerebro-spinal meningitis; after the acute stage, when hydrocephalus has developed, it is useless. As a therapeutic agent it *may be* of value in cerebro-spinal meningitis, provided sufficient quantities of fluid are removed at repeated punctures during the early stage of the disease.

Measles, Sepsis in.—Folger [5] reports two rapidly fatal cases (3 and 5 days) from which streptococci were obtained in pure culture from the blood a few hours after death. In both the usual symptoms of sepsis were absent, the children were not considered alarmingly ill, and death occurred very suddenly as a surprise.

Milk, Human.—Charles Michel [16] devotes considerable study to the question of the amount of the various nutritive materials contained in human milk which is utilized by the organism of infants between 1 and 5 days old. As a result of his analyses he comes to the conclusion that a newly born child weighing between six and seven pounds, and gaining a normal amount of weight daily, utilizes the nutritive materials of the mother's milk in the following proportions:

	Per cent.
Total alimentary substances (or dry extract of milk)	96.11
Fats	96.35
Nitrogenous substances	93.60
Mineral salts	78.26
Lime	59.42
Phosphoric acid	91.63

In other words, there is almost total utilization of the nutritive elements. The mineral matters are the least perfectly

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utilized; about 40 per cent of the lime and only 10 per cent of the phosphoric acid ingested are rejected with the feces.

Otitis Media, Acute, in course of Acute Inflammations of the Respiratory Organs.—Teichmann[15] examined 268 children, only 16 over the age of 4 years; 195 had catarrh of the upper respiratory tract and 73 had pneumonia. The ears were normal in 81; there was acute otitis externa in 15, otitis media in 90, with perforation in 44, and chronic otitis media in 38. In the catarrhal cases the ear complications developed most frequently on the fifth and sixth days; in pneumonia, on the eighth day. All these ear lesions ran a mild and favorable course, but permanent injury to the ear must be kept in mind during their treatment.

Ovarian Tumors in Childhood.—Herzog[16] reports a case of large multilocular ovarian cyst in a girl of 14 years, combined with a smaller dermoid cyst in the other ovary. She made a good recovery after the operation. The case is of interest because both sides were involved, no similar case having been reported in so young a patient. The literature is also reviewed.

Pathogenesis of the Bacillus Pyocyaneus and the Etiology of Ecthyma Gangrenosum.—Kreibich[17] details two cases of gangrenous ecthyma in babies 9 months and 12 days old respectively. The elder had tuberculosis, while both had enteritis. The bacillus pyocyaneus only was found in the skin, lungs, tongue, and conjunctiva (also in the intestines), both in cultures and in sections. The pathology of the skin lesions is illustrated by three drawings, and the literature is partially reviewed. The bacillus proved pathogenic to guinea-pigs.

Retro-esophageal Abscess.—J. P. Crozer Griffith[18] reports a case in a child 21 months old. The symptoms were a cough of peculiar character, like that of stenosis of the trachea from tumor, constant and well-marked dyspnea. The diagnosis was obscure. Bronchitis, croup, stenosis from mediastinal tumor or from tuberculous glands, were all suggested. Tracheotomy was performed but gave no relief, and the child died. At the postmortem examination an abscess was found situated behind the trachea and bronchi; it reached upward over the first thoracic vertebra and downward to about two inches below the bifurcation of the trachea. Its posterior wall was formed by the vertebræ, and the interior surface of the body of the first thoracic vertebra was eroded sufficiently to allow the tip of the little finger to enter the hole formed. The author describes 7 cases of this affection, which are apparently all which have been published during the past fifteen years. The symptoms do not appear to be characteristic, and the diagnosis of the disease is difficult and often impossible. Dyspnea is present to some extent, and cough is nearly always a symptom, sometimes being very slight, sometimes brassy and suggesting laryngeal stenosis, or, as in this case, pressure lower down upon the respiratory tract. The voice is seldom affected, in sharp distinction to the voice of retropharyngeal abscess, which is so often thick and nasal. Dysphagia is absent, which is another

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distinction from retropharyngeal abscess. Swelling in the neck was present in only 3 cases. Curvature of the upper dorsal or lower cervical spine may or may not occur, depending upon the degree of caries, if this exists. In 5 cases the cause was diphtheritic pharyngitis. The disease seems to be preeminently one of infancy and early childhood.

Scarlatina.—Pospischill[8] reports 27 cases in detail of severe scarlatina, dividing them into three groups: 1. Cases with severe infection but mild pharyngeal affection. 2. Cases with equally severe general infection and local lesions, both alternating in making the clinical picture a grave one. 3. Cases with severe pharyngeal affection but without severe general infection. To the first group belong the majority of severe scarlatina cases; they rarely recover, but run a very rapid and fatal course. In the second group gangrene of the pharynx commonly occurs, and these cases may be rapidly fatal, with septic symptoms, or may run a long course with death occurring on the twenty-seventh day of marasmus, or may recover. The prognosis of cases presenting severe toxic symptoms but no rash is absolutely fatal, as it is in cases which have a very marked, violet-colored rash with cold extremities and coma.

Pospischill[8] reports 9 cases of scarlet fever, in 4 of which a pseudo-relapse occurred on the twentieth, seventeenth, twenty-third, and fifth days respectively; 2 died of pneumonia. In 5 cases a true relapse occurred on the twelfth, fourteenth, seventeenth, twenty-ninth, and thirty-sixth days. More than half the cases were originally very severe; in one both the first attack and the relapse were septic. In the mild cases the relapse was also mild. The second eruption was typical, occurring on the trunk and extremities, not on the face. Once the trunk also remained free. The second attack was ushered in with vomiting in two cases, and in all with high temperature, angina with fresh exudation, glandular swelling, and even articular swelling.

Scarlatinal Albuminuria.—Fred. Dittmar[10] gives an analysis of the results of six months' continuous observations of urines of 91 consecutive cases. The result of the investigation may be summarized as follows: (1) Albuminuria or hematuria, or both, occurred in 52 7 per cent of the cases observed. (2) The cases seemed to divide themselves naturally into three classes—(*a*) those of pure albuminuria in which albumin only was detected; (*b*) those of hematuria in which "blood" seemed to be present; (*c*) those of albuminuria and hematuria, the albumin being greatly in excess of the hemoglobin as found in the blood. (3) Dropsy or edema of the superficial parts was observed unmistakably in only three of the cases. (4) A "pre-albuminuric" and a "post-albuminuric" stage do not exist in the proper sense of the terms. (5) A pulse of "high" tension was not an invariable accompaniment even of undoubted nephritis.

Scleroderma.—Neumann[4] believes that the only true cases of scleroderma which have been reported are those of Cruse,

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4 in number. To these he adds a fifth, a baby of good family history who had a suppurating mastitis and a suppurating umbilicus, and who on the thirteenth day developed a hard, red, painful area over the left shoulder, spreading to the right shoulder and buttocks. There was also catarrhal stomatitis and eczema on the back. The arms also became involved in the infiltration process, which gradually disappeared, until at the age of 3 months there were only traces of hardness left. The child's further development was excellent. There was no fever during the course of the disease. The case is very similar to that of Cruse. The etiology of the condition is still quite dark.

Stenosis of the Larynx, Congenital.—J. O'Dwyer[8] reports and describes such a case. The malformation consisted in a union of the aryepiglottic folds throughout, completely obliterating the vestibule of the larynx. Dilatation was begun with small urethral sounds until the opening was distinctly felt, when the finger was substituted, and by making counter-pressure on the outside the adhesions were easily broken up until the larynx would admit the tip of the finger as in the normal condition. The dyspnea was completely relieved and a cure effected in four sittings.

Sudden Fatal Cerebral Hemorrhage in a 9-year-old Boy.—Jellinek[9] reports the case, death occurring about two hours after the onset of the symptoms. At the autopsy a large hemorrhage, recent, was found in the substance of the right parietal and temporo-sphenoidal lobes. The etiology of this case is not clear, and can only be explained on the ground of Baginsky's hypothesis that a structural change may have existed in the blood vessels, not demonstrable anatomically.

Van Arsdale's Triangular Splint in Thirty-three Cases of Fracture of the Shaft of the Femur in Infants and Children under 6 Years.—E. Ernest Gallant[10] describes this splint and claims the following advantages for it: 1. Overlapping is prevented by the flexed position of the thigh, relaxing the muscles. 2. The fragments are held in perfect apposition owing to the nice adjustment of the splint to the thigh and complete immobilization in whatever position the child may be in. 3. Frequent readjustment is unnecessary, as the dressing is not soiled by the excretions, nor are chafing and dermatitis met with. 4. Complications due to confinement in bed in the dorsal decubitus, such as hypostatic pneumonia and vulvo-vaginitis, are avoided and the liability to concurrent disease prevented. 5. Loss of flesh and strength does not occur, as the child is well and happy; it can nurse at the breast, sit on a chair, play on the floor, even learns to crawl about, sleep on either side—in fact, lives a perfectly natural life with the one exception, inability to walk. 6. Under these conditions we are justified in expecting rapid, firm consolidation in three weeks without shortening, and non-union will be rarely if ever met with. 7. For older children and adults the triangle can be strengthened by the use of plaster-of-Paris, the flexed position of the limb

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being the best for maintaining the fragments in apposition, the most comfortable for sitting or lying and other necessary functions, and the most convenient for getting about on crutches.

Vulvo-vaginitis in Little Girls, Treatment of.—Witthauer" has used alumnol in the form of sticks six centimetres long, containing three per cent of the drug, which he introduces into the vagina after careful cleansing of the external genitalia. This is done every third day, warm sitz baths being given on the intervening days. Of three cases so treated. two being true gonorrhea, but four to five sticks were needed to check the purulent discharge completely and permanently.

Warm Baths in the Treatment of Broncho-pneumonia.—M. Desmons" bears testimony to the value of the warm-bath treatment of broncho-pneumonia advocated by Prof. Lemoine. The results obtained, he says, are astonishing, and he now rarely loses a case from this disease, which is usually of such gravity. By giving the baths as soon as the lungs show the slightest symptom he is often able to abort an attack. When the case is a severe one he gives the baths every three or even every two hours. There was at first some slight difficulty experienced among his conservative country patients in inducing them to let him adopt the measure, but so great has been his success that the parents themselves are now the ones to ask that it be tried. He reports the following interesting case in detail: A little girl of 4½ years became affected with measles during an epidemic of the disease. The course was apparently normal, when on the second day the evening temperature rose to 39° C. (102.2° F.) and the respirations increased in number. Toward 3 o'clock in the morning the patient's condition became critical; the temperature was 41.6° (106.8°), the respiration like that of a dog which has been running hard; there was delirium, cyanosis of the face, and it was impossible to administer any medicine. Warm baths were prescribed; the first one was taken at 4 o'clock at a temperature of 35° (95°) with 250 grains (8 ounces) of mustard meal in it, and was prolonged for about ten minutes. The general condition seemed to be favorably affected by the bath, but the alarming symptoms reappeared, and at 5 o'clock a second bath, similar to the first, was given; the improvement was more marked and the child was able to drink. At 6 o'clock a third bath was given, followed by still greater improvement. At 7 o'clock the fourth bath caused slowing of the respiration and cessation of the delirium; the patient recognized those about her and drank easily; the temperature was 39.4° (103°), having become lowered more than two degrees in three hours. The baths were continued at intervals of two hours; in the afternoon the temperature was 38.5° (101.3°) and the general condition good. Two days later the child was convalescent. Prof. Lemoine adds a few lines to this article, giving his approval to the persistence in the administration of the warm baths shown by Desmons, and especially commending the use of mustard. He gives it as his

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opinion that as soon as a patient has crepitant râles and a little elevation of temperature, the warm baths should be administered as a matter of routine practice.

Worms.—William Fitch Cheney[25] gives some practical points about worms in children. First, it is a good rule never to make a diagnosis of worms unless they have been seen to pass from the child. Mothers frequently find particles of mucus in the stools which they call worms, and the physician should insist upon being shown the evidence. Where the symptoms are suspicious and yet no worms have been seen, the best plan is to give the child a cathartic, such as calomel or castor oil, and then to watch the stools. If no worms are swept out by this means it is reasonably certain that none are present. The second point is that most of the symptoms attributed to worms are due rather to indigestion, and the mothers are the ones most to blame, because they have allowed improper food. Even if worms are found their presence is very frequently secondary to the indigestion, and they have been able to find lodgment and to thrive because the gastro-enteric mucous membrane, by bad feeding, has been put in a condition to tolerate them. Thirdly, the most common kind of worm, the pin worm, is best treated by rectal injections. The simplest fluid to use is a solution of salt in water, a teaspoonful to a pint, and the best time to inject it is directly after the daily evacuation of the bowels. Another useful injection is an infusion made by steeping for half an hour an ounce of quassia chips in a pint of boiling water, straining the fluid and using it when cool. In some cases, where the worms have migrated high in the colon, they are not all reached by rectal injection, and to this treatment must be added that of drugs by the mouth. For this purpose the most useful mixture is that suggested by J. Lewis Smith, consisting of santonin and the fluid extract of spigelia and senna.

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ERRATUM.

In the list of contributors published in the December JOURNAL the address of Dr. M. Goltman should read *Memphis, Tenn.*

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DISEASES OF WOMEN AND CHILDREN.

VOL. XXXVII. MARCH, 1898. No. 3.

ORIGINAL COMMUNICATIONS.

A NEW OPERATION FOR THE RADICAL TREATMENT OF CANCER OF THE CERVIX, CONSISTING OF THE REMOVAL OF THE UTERUS AND VAGINA EN MASSE BY THE SUPRAPUBIC METHOD:

WITH REPORT OF A CASE.

BY

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THAT the radical operations as ordinarily performed for the cure of malignant disease of the uterus are, to say the least, unsatisfactory, is shown by the large percentage of recurrences within a comparatively short period, and by the number of modifications in the technique recently recommended by different operators for the purpose of improving our permanent results. That the cause of failure is largely due partly to our inability to operate in strictly healthy tissue in cancer of the cervix, especially when extensive and involving the greater

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part of the vaginal portion, and partly to an inoculation of healthy tissue with cancer cells during the course of operation, I think can be demonstrated by the fact that in the large majority of cases the disease returns in the vaginal cicatrix left as the result of a hysterectomy whether vaginal or abdominal. Such, at least, has been my experience in all the cases in which I was able to observe the subsequent course of the disease. In order to obtain better results it is, therefore, essential to do more radical work at the seat of disease, viz., the cervix and vaginal fornices, which are in contact and frequently more or less extensively involved in the disease. It is these latter particularly—*i.e.*, the vaginal fornices—which cannot always be removed to a sufficient extent to insure operating in absolutely healthy tissue by the ordinary vaginal or suprapubic methods of hysterectomy, on account of the proximity of the bladder, rectum, and ureters.

For some time I have been convinced that the *removal of the vagina*, or, at least, *its upper portion, with the uterus*, is the only method which enables us to completely extirpate the diseased parts in cancer of the cervix. It occurred to me that the technical difficulties connected with such an operation could be successfully overcome by opening the abdomen, severing the uterus as in an ordinary hysterectomy, and freeing the bladder from it; with this difference, however, that the dissection is extended down along the vagina, separating the anterior wall of that canal from the bladder as far down as we wish to remove the vagina. The recto-vaginal space is then entered, and the posterior vaginal wall is stripped off the rectum as far down as necessary; finally the lateral attachments of the vagina are loosened. The uterus and vagina having thus been entirely freed, that organ could be pushed down into the pelvic outlet, the vagina being inverted by making traction from below until it could be amputated above the prolapsed fundus. All this could be done without touching the diseased cervix with the fingers or allowing it to come in contact with any wound surface, thereby absolutely excluding the possibility of inoculating healthy tissue with cancer elements.

The feasibility of the operation briefly described above having been tested and confirmed in the postmortem room, an opportunity for its practical execution presented itself on the living subject January 5 of this year.

The patient, Mrs. D., æt. 45, mother of four children, youngest 19 years old, was referred to me by Dr. C. M. Cameron,

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who had made a diagnosis of cancer of the cervix in February, 1897, almost a year ago, and advised operation, which was, however, refused until hemorrhage and a very fetid discharge compelled her to get relief. When she came under my notice she was anemic and weak. The vaginal portion of the cervix was the seat of a cauliflower growth completely filling up the upper portion of the vagina and invading the anterior vaginal pouch. The uterus, however, was still movable and parametria free. Radical operation seemed, therefore, still indicated and advisable. It would have been exceedingly difficult to keep at a safe distance from the diseased area in the vagina, especially at the anterior vaginal wall, in the usual vaginal or suprapubic hysterectomy, and the case seemed especially suited for the operation under consideration.

The patient having been anesthetized, the whole vaginal portion was very easily removed by a sharp spoon curette, as it was completely broken down by the disease. The remaining bleeding surface was seared over with the thermocautery. The patient was then prepared for laparatomy. Both ovaries and tubes were found adherent, and the left tube distended with about an ounce of creamy pus. After the ovarian arteries were secured the bladder was separated, not only from the uterus, but also from the broad ligaments on either side as far as possible, so as to get the ureters out of the way. This opened up both broad ligaments, and the uterine arteries could be easily traced over to near the pelvic bones, where they were tied without difficulty. An assistant having inserted two fingers into the vagina as guides, the dissection between bladder and vagina was then carried down to within about an inch of the vulva. The sacro-uterine ligaments were then divided with scissors, the rectum separated from Douglas' pouch, and, with two fingers, the dissection extended down to the lower half of the vagina. The lateral walls of the vagina were then freed from their attachments. The uterus and vagina were now only held by the base of the broad ligaments, which were very firmly bound to the vaginal fornices, the separation of which formed the only really difficult part of the operation. This having been accomplished and the broad ligaments completely divided, the finger could be passed all around the uterus and vagina, and at no place had the vaginal tube been opened. The loss of blood during the whole operation was insignificant. The uterus and vagina were then pushed down into the pelvic outlet, and the bladder with its peritoneal flap drawn across the

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pelvic cavity and stitched over the rectum to the posterior wall of the pelvis, thereby completely shutting off the pelvis from the general peritoneal cavity and covering up all raw surfaces with peritoneum. The abdomen was closed in the usual manner.

The operation having been done in the Trendelenburg posture, the patient was now replaced into the ordinary lithotomy position. The uterus, which was protruding at the vulva, was seized with volsella forceps and drawn completely out of the vulvar orifice with the inverted vagina. With a finger in the rectum and a sound in the bladder, as safeguards against injuring these organs, the inverted vagina was amputated with the thermocautery.

An inspection of the pelvis showed a large raw cavity lined in front and above by the bladder, behind by the rectum, about four inches of which were completely exposed, and below by a very short vagina. The cavity was lightly packed with gauze and the patient returned to bed. Duration of operation, two hours.

The specimen consisted of the uterus with the right ovary and tube attached, the left one, filled with pus, having been removed earlier in the operation to prevent soiling the field of operation. To the cervix were attached at least two inches of the vagina.

The patient was suffering from considerable shock, from which she recovered rather slowly. After the third day, however, her condition became entirely normal, and her convalescence was interrupted only by a slight parotiditis which subsided in a few days. Examination of the pelvis on the tenth day showed a very small cavity above the remaining vagina, covered with healthy granulations, in which the bladder and rectum were no longer recognizable.

The operative technique I found much easier than I had anticipated and not more difficult than a total abdominal hysterectomy. After a little experience I think it should not consume more time than the latter operation. I would suggest the use of rubber gloves for the preliminary curettement, to keep the hands aseptic and to avoid contact with cancerous tissue, thereby not only preventing any danger of septic contamination, but also excluding with absolute certainty the possibility of inoculation.

The operation seems an ideal one for the treatment of cancer of the cervix, because we can do a more radical operation than

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by any other method, and we can remove that part which, on account of its proximity and anatomical relation to the original seat of disease, is earliest invaded, but by our present methods most difficult to reach. It should give more permanent cures, even in advanced forms, because we can not only extirpate the vagina or as much thereof as may be deemed necessary, but we can excise the greater part of the broad ligaments if we take the precaution to carefully push aside the ureters with the bladder. It enables us also to get at the iliac glands without much additional trouble or difficulty, should we regard their removal necessary.

524 PENN AVENUE.

VAGINAL IMPLANTATION FROM ADENO-CARCINOMA OF THE UTERUS.

BY

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(With two illustrations.)

NEITHER the American nor the English literature or any of the text books on gynecology have, so far as I have been able to ascertain, referred to or recorded a single case of vaginal implantation in cases of cancer of the uterus; however, I propose to show this is a subject of vital importance.

There are numerous well-authenticated instances where secondary nodules have developed in healthy tissue lying in constant contact with malignant growths. Similar proof also exists of this infectious nature of malignant tumors in the peritoneal implantation of cells from papillomatous tumors of the ovary.

Experimental attempts to inoculate animals with cancerous material have been frequently made, but have given few conclusive results. The most convincing are those of Hanau,[1] who injected material from a cancer of the vulva of a rat into the tunica vaginalis testis of two others. The autopsy on one showed a wide-spread cancerous deposit on the peritoneum and omentum, and other similar nodules about the point of injection. A third rat was then inoculated from the second, and

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in this case there was found besides the local growth an infection of the whole peritoneal cavity.

Hahn,[3] Von Bergmann,[3] and Cornil[4] have reported cases where similar experiments were made on the human subject. Ethically the proceeding was outrageous, but gave most positive results. They transplanted pieces of an inoperable cancer of the breast to the other healthy one. These not only grew like a portion of skin after grafting, but also retained the progressive characteristics of malignant growths.

Winter published in the *Zeitschrift für Geburtshülfe und Gynäkologie*, vol. xxvii., a careful and elaborate study on the subject of recurrences following hysterectomy for cancer of the uterus. He claims that in the majority of cases where the return is in the region of the operation it is due to inoculation of healthy tissue by cancer cells. I have already stated my objections, in a paper published in the December number, 1896, of this JOURNAL, to such a wide acceptance of his premises. He had reviewed, up to the time of publication, all the literature bearing upon the subject, and among the cases cited we find some which cannot be interpreted other than as implantations. These are they in which isolated nodules were found growing upon the vaginal mucous membrane in association with adeno-carcinoma of the body of the uterus and having an identical histological structure.

The concurrence of opinion at the present time is against the gland-bearing theory of the vaginal mucous membrane.

Occasionally vaginal cysts are caused by inclusion of small areas of mucous membrane during healing either from injuries or operation. These, though, are simple cysts lined with squamous epithelium.

Also rarely one discovers spaces lined by the various kinds of cylindrical epithelium, which are evidently the remains of the embryological structures, Gärtner's ducts. These gland-like spaces are invariably situated in the vaginal fornices near the cervix or between the cervix and the urethral orifice.

One can therefore positively assert that a malignant growth of the adenomatous type found in the vagina must be of extraneous origin.

Neither can their presence be explained as metastases, as the course of both the lymphatics and blood vessels supplying the uterus and vagina renders it impossible.

Secondary nodules may also develop from an epithelioma of the vaginal portion of the cervix, as in the case cited by Fischer,[1]

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yet they have not the striking interest of having grown on entirely different tissue, neither is there a positive assurance that they are not independent growths.

The practical side of this subject is important from two standpoints:

First. A superficial malignant growth of the vagina should always make one suspicious that the disease is an implantation from a primary growth in the uterus.

Second. There exists a positive danger of inoculating healthy tissue during operation for malignant growths.

In case one finds upon vaginal examination a suspicious growth, and the patient has complained of symptoms common to malignant tumors, a most thorough investigation is demanded. This neglect may lead to the most distressing results, as was experienced in the following case:

November 13, 1895, Gyn. No. 3955. J. A. S., age 46. Complaint, pain in right lower abdomen and bloody vaginal discharge. Married twenty-four years; IVpara; labors normal; no miscarriages. Menstruation always regular, intervals four weeks; flow free, not painful; past three to four years has become excessive. Leucorrhea for three or four years has been abundant, yellowish, and at times offensive. She has also noticed occasionally a small amount of blood mixed with the discharge. Family history negative. Personal history, always strong and healthy.

Present Condition.—Fourteen years ago she began to have pain in the lower abdomen, bearing-down in character, and a sensation as if something was moving within her. Soon after this there was some protrusion at the vaginal orifice. Four years later patient began to wear a support, which kept the parts in place. One and a half years ago she began to have severe pain in lower right side of abdomen, paroxysmal in character and radiating into thigh and hip. Urination is attended by bearing-down pains and increased in frequency. The bowels are constipated. There has never been any pus or blood in stools. She has been steadily losing flesh. Patient is poorly nourished, but skin and mucous membranes are of good color.

Examination of heart, lungs, and urine negative.

Vaginal Examination.—Outlet markedly relaxed; mucous membrane normal. On posterior vaginal wall two centimetres from the cervix is a friable fungating tumor, 5 × 4 centimetres in diameter, perfectly circumscribed by healthy-looking mucous

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membrane (see Fig. 1), and not adherent to the deeper tissues of the wall. The cervix does not show any changes. The uterus is in anteposition, freely movable, and does not feel enlarged or irregular in outline. Both tubes and ovaries are normal.

Rectal examination shows that there is apparently no connection between the vaginal tumor and bowel (Fig. 2).

Operation by Dr. Kelly: Tumor excised with four to six millimetres of healthy mucous membrane about the margin, and the incision closed with interrupted catgut sutures.

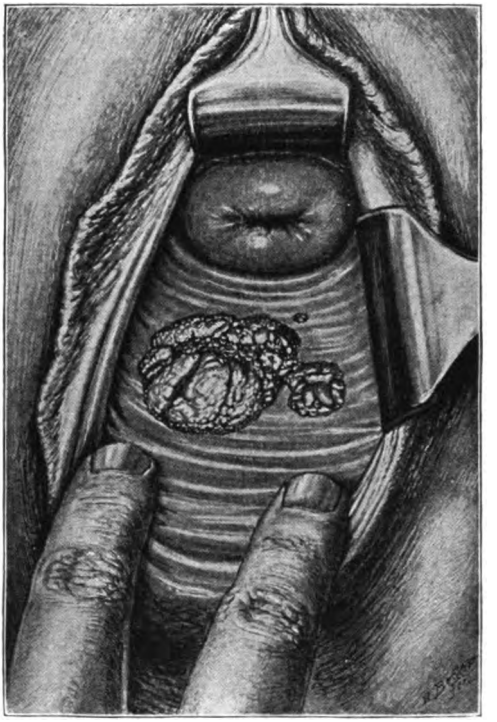


FIG. 1.—Implantation nodule on posterior vaginal wall from an adeno-carcinoma of the uterine body.

Upon the patient's discharge from the hospital twenty-two days later the wound was completely healed and the patient's general condition excellent.

Macroscopically the specimen presents the usual characteristics of a malignant growth. It seems entirely superficial and surrounded at every point by healthy tissue.

Microscopical examination revealed a typical adeno-carcinoma. The glands are lined with cells resembling those of the

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uterine mucosa. The growth is also absolutely circumscribed and has all been removed.

Patient readmitted August 31, 1896, Gyn. No. 4611.

Complaint.—Renewal of symptoms. Pain in right lower abdomen has increased in frequency and severity. The bloody leucorrhea continues as before operation. There has never been any hemorrhage, but almost daily a profuse blood-tinged discharge. Menstruation not changed in character; bowels very constipated; defecation generally very painful, but no blood nor mucus passed. Has lost flesh and is now very thin, weak, and pale.

Examination.—Scar in posterior vaginal wall from previous



FIG. 2.—Sagittal section of the cervix (C) and vagina, showing the isolated carcinomatous nodule in the posterior wall, showing entirely superficial nature.

operation perfectly healed and does not show any evidence of a return of the cancer. The cervix is normal. The uterus is the size of one three months pregnant, but is hard and irregular in outline and fixed. A small cyst in region of left ovary was ruptured on examination. On the right side there is a hard, fixed mass extending from the uterus out to the pelvic wall.

Operation by Dr. Russell: Exploratory celiotomy; median incision. The left tube is normal and the ovary shows the collapsed walls of a ruptured simple ovarian cyst. Two glands the size of hickory-nuts are felt in the notch of iliac vessels. On the right side the whole broad ligament from the uterus to

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the pelvic wall is infiltrated with a neoplasm in which the ovary is enveloped and hidden. The tube at the uterine extremity is greatly thickened and only visible for about three centimetres, when it disappears into the tumor. Uterus is very dense and irregular in outline, due to small papillary nodules just beneath the peritoneal covering. A gland in the lumbar region at the side of the aorta is enlarged to size of an almond. It is impossible to enucleate the mass. Abdomen closed with interrupted sutures of silkworm gut.

Patient was, after completion of abdominal operation, curetted and a large amount of friable tissue obtained.

The convalescence was uninterrupted, but the patient was discharged from Hospital not improved.

The microscopical examination of the curettings showed a typical adeno-carcinoma of the uterine body.

Lebensbaum,[9] Rosinski,[10] and Kaltenbach[11] have reported cases of similar character, but fortunately had their patients under constant observation and discovered the uterine growth before it had passed the operable stage.

The confusing symptom in these cases is the hemorrhage, as the vaginal growth may be in such a condition at the time of the examination as to be the source of extensive bleeding, while the growth in the uterus is not sufficiently advanced to cause a manifest increase in size or change in shape. In our case the uterus and appendages were carefully examined by bimanual palpation at the first operation, but not the slightest suspicion of disease was detected. If at this time uterine curettings had been obtained and studied, the cancer would undoubtedly have been discovered and a radical operation at once advised, with a most favorable prognosis. On the contrary, the patient did not reappear for treatment until the pelvic pain had become unendurable nine months later, although there had been more or less persistent bloody oozing.

Immediate reappearance of hemorrhage or frequent and prolonged menstruation after the removal of a cancer of the vagina should suggest at once a thorough examination of the uterus, including curettings.

These cases demonstrate the importance of systematic study of all specimens obtained by operation.

All explanations of this process are purely hypothetical except the fact that there must be an abrasion of the mucous membrane on which the cancer cells can be deposited.

Where these growths have occurred subsequent to operation, it has been in the scar of incisions made to widen the vaginal

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canal for the purpose of obtaining more working space (Schopf,[5] Odebrecht[6]), or in places where the mucous membrane has been injured by instruments (Fritsch,[7] Nebergall[8]). In Lebensbaum's[9] case a benign ulcer on the posterior vaginal wall was the point of development.

Pessaries were probably the predisposing cause in our case and Rosinski's.[10] Irritating leucorrheal discharges was the only explanation Fritsch[7] could find for the vaginal excoriations in his case.

The prominence over the urethra is a common point for the development of secondary nodules. Fischer offers as an explanation for this the exposed position, subjecting it to frequent traumatism and irritation from fermenting urine, while Winter[11] claims that these may be spontaneous metastases.

1415 EUTAW PLACE.

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DOUBLE CELIOTOMY FOR APPENDICITIS AND RETROVERSIO UTERI; INTESTINAL PARESIS; RECOVERY.[1]

BY

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OF all the complications following abdominal operations, perhaps the most trying to the surgeon is paralysis of the intestines. The symptoms usually manifest themselves about

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, January 20, 1898.

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the same time that sepsis may be looked for—namely, during the first or second day—and, with the frequent exception of high temperature which always accompanies sepsis, they are very much the same: a distended abdomen, often accompanied by severe pain, distressing nausea, gagging and vomiting, intense thirst, an anxious, drawn expression, pallor, and a moist skin. There is usually marked nervous excitability, and a sense of impending danger overwhelms the patient. The pulse is small and rapid, 118 to 132, but not often very weak. This, with the absence of fever, is the chief consolation of the operator. The temperature, however, may rise to 101° or 102⅘°, and then it is most difficult to differentiate the symptoms from those of beginning sepsis. All symptoms, especially the pain, increase with the progressive abdominal distension, and if this cannot be rapidly overcome the patient may collapse from heart failure or from exhaustion due to the constant retching and gagging and the impossibility of retaining nourishment. If we had some sure and unfailing sign of beginning sepsis, many cases might be saved by immediate reopening, flushing, and drainage; but we have not, and therefore these cases are frequently confounded with the class of cases under discussion, and much time is lost waiting for the unmistakable signs of septic infection, and consequently the reopening is undertaken too late. Fortunately, with our improved technique and methods of operation, both classes are comparatively rare. Nevertheless, in spite of the utmost care, occasional cases will arise, and doubtless every operator in this room will admit that he meets them now and then.

The question which confronts us during the first few hours is: What are we dealing with, intestinal paresis or beginning sepsis? Reopening, flushing, and free drainage will sometimes save a patient with beginning sepsis, whereas in intestinal paresis such a procedure would probably be followed by a fatal result and would certainly be severely criticised by most operators. The writer has long felt, however, that if it were possible by some such means to puncture the bowel in several places and allow the accumulated gas to escape, many a patient would be saved hours of untold suffering, there would be less risk of injury to the abdominal wound from stretching, and perhaps lives could be saved. It seems impossible in some cases to relieve these patients by medicinal means. Cases will die, in spite of every effort of supporting treatment, from gradual increase of abdominal distension, crowding the patient

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out of existence, as it were, by pressure upon the diaphragm, thus interfering with respiration and cardiac action. The autopsy in these cases shows an absolutely clean abdomen and pelvis free from the slightest trace of inflammation or exudate of any kind. With the exception of the distended small intestines there is no lesion to be found, and one is forced to the conclusion that death has been caused by the mechanical action of the accumulated gas. Is there any way of preventing the formation of this gas, or, when formed and forming, is there any means by which it can be removed? This brings us to the question of its etiology. The muscular walls of the small intestine become partially paralyzed and the peristaltic action of the bowel ceases, partially or completely. By auscultation we may detect very weak muscular action by gurgling sounds. The prognosis in a given case increases in gravity as this sign disappears. A silent belly in the presence of distension is of grave significance. It is fair to presume that in connection with paresis of muscular action there exists diminished or absent glandular function of the bowel, hence arrested digestion, which favors fermentation and accumulation of gas. The distension increases the glandular and muscular paralysis, and this in turn favors further distension. But such a theory seems very unsatisfactory. If there is such general paralysis of the muscular walls of the intestines, what is there to prevent the gas finding its way into the colon through the ileo-colic valve? Once in the large bowel it is comparatively easy to deal with. High rectal enemata or the long rectal tube, properly managed, ought to be effectual, and they are effectual when the gas is located in this part of the gut. But the cases of which we are speaking are not reached by these methods in by any means a satisfactory manner. Our enemata are productive of no result, and the rectal tube, no matter how skilfully managed, fails. Therefore we are led to suspect that a spasm of the ileo-cecal valve exists which prevents the escape of the gas into the colon.

May not such a spasm at the ileo-cecal valve be the primary factor of the whole trouble? The simple opening of the peritoneum may have such an influence upon the sympathetic ganglia as to cause spasm as well as paralysis of the various parts of the viscera over which they preside. This is all the more likely to be the case after an operation which necessitates extensive handling of the abdominal contents. Once established, the small intestine, unable to expel its contents, accumulates

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gas, and as it becomes more and more distended it loses its muscular power by paralysis from distension, and relief cannot be obtained until the spasm yields and the gas escapes into the large bowel.

It seems to the writer that the foregoing speculations are quite as plausible as the many explanations which have been advanced for this obscure and little understood pathological condition. The means at our command for the relief of this alarming condition are few, the chief object being to establish active peristalsis and thorough evacuation of the bowels. The heart must be supported and the nutrition of the patient kept up. Owing to the nausea and constant vomiting, but little, if anything, can be given by the mouth, and we must support our patient by nutrient enemata. Such enemata should be repeated every four hours. For the heart, hypodermatic injections of strychnia, a twentieth of a grain every three or four hours, with whiskey by enema or hypodermatically as often as may be necessary, are usually sufficient. The strychnia also exerts a favorable influence upon intestinal peristalsis. The bowels are best acted upon by hourly doses of one-half to one grain of calomel, dry on the tongue, in conjunction with high rectal enemata of magnesia sulphate, glycerin, turpentine, and water, repeated every four hours. The rectal tube may be left *in situ* and often aids in the escape of flatus. When peristalsis once begins and the calomel has begun to work—if I may make use of the expression—the patient's sufferings are often alarmingly increased. This is, however, a good sign, as it is usually followed in a few hours by an action of the bowels and the expulsion of much flatus. At this time the heart may grow exceedingly weak, the pulse rate reaching its highest point, and we must push our stimulants. If at the same time the patient suffers the usual intense thirst, the use of normal salt solution by hypodermoclysis gives great relief, not only improving the force and frequency of the pulse, but also relieving in a very remarkable way the thirst.

Peristalsis once established is usually progressive, and the patient goes on to recovery. But her experience has left her weak and her convalescence is slow.

The following case illustrates the above remarks, and I venture to report it, not only on this account, but also because it is of interest in itself owing to the fact that two abdominal incisions were required. This fact may in a measure account for

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the intestinal paresis which developed after the first twenty-four hours and which so nearly cost the patient her life.

Appendectomy; Hysterorrhaphy performed September 27, 1897.—The patient is a young unmarried woman 25 years of age. She had always enjoyed good health until April, 1897. Menstruation began at the eleventh year and was always regular and unaccompanied by pain until after her second appendical attack. In April, 1897, while walking in the street, she had a sudden attack of severe abdominal pain which doubled her up. Feeling that it was impossible for her to walk, she called a cab and was driven home, where she went to bed and applied hot-water bags and took at intervals drinks of hot whiskey-and-water. In a few hours the pain left her, and, although she felt weak and debilitated, she dressed and went about as usual. She had been eating irregularly for a few weeks previous to this attack, and in consequence had suffered slightly with dyspepsia. This was her first appendical attack.

Nothing further happened until July, when she had her second attack—quite as sudden but much more severe and of longer duration than the first. This attack antedated her regular menstrual period by four days, and, as she had been taking unusually long bicycle rides over hilly country roads during the previous few weeks, it was thought that her symptoms were due to a possible retrodisplacement of the uterus, and she was treated accordingly. She was given several hypodermatic injections of morphia. The menstrual period came on two days late and was extremely painful. The pain was most severe in the sacral region on the right side and in the right iliac fossa.

I should mention that her previous attack was characterized by the pain beginning and ending in this region. The July attack kept her in bed about ten days, and during this time she lost much strength and weight. In August she menstruated at her regular time, but suffered sufficient pain to make her go to bed for a few hours the first day. During the month her appetite and digestion were poor and her bowels constipated. She had a great deal of headache, and the abdomen constantly distended with gas. At this time she came under my professional care. She was ordered a course of calomel, and, after the tongue cleared and the bowels had been freely acted upon, she was given small doses of acid and pepsin after eating.

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She improved under this treatment, and seemed very well until the night of September 8, when, without any apparent warning, she had a sudden violent attack of general abdominal pain. Examination revealed all the classical symptoms of appendicitis. The rectal examination was omitted. There was nausea and vomiting. After a few hours the pain became localized in the right iliac fossa. There was rigidity of the right rectus muscle. The pulse was 88 and temperature 99°.

A large dose of oil, followed the next day by salts at intervals and enemata of magnesia sulphate, glycerin, turpentine, and water, did not prove effectual. The pain, nausea, and vomiting continued and the abdomen became slightly tympanitic. An ice bag constantly applied in the right iliac region seemed to give the greatest relief. On the third day, after persistent efforts at catharsis, she had two large bowel movements followed by marked improvement of all symptoms.

Every arrangement having been made for operation on the third day, the patient having had no sleep since the beginning of her attack, and as she was suffering intense pain not only in the right iliac fossa but also in the right sacral region, it was decided to give her morphia by hypodermatic injection on the evening of the second day. Dr. L. Bolton Bangs saw her in consultation at this time, and it is needless to say that we expected to be obliged to operate the following morning. She fell asleep shortly after the hypodermatic and slept all night. The next day she awoke with great relief from pain, and a few hours later had a large, highly offensive, dark-colored movement. Her general condition improved rapidly after this from hour to hour and from day to day, until at the end of ten days she was able to leave her bed and begin to go about. While in bed, on the fifth day after the onset of the attack, she menstruated normally without pain. Her convalescence progressed steadily until the fifteenth day, when she suddenly developed another attack. This was her fourth, but was not so severe as the others and yielded readily to treatment.

On the second day after this attack she was well enough to undertake a railroad journey of twenty-four hours in order to reach Philadelphia, where arrangements were made for an immediate operation. With the assistance of Dr. Edward Martin, the operation was performed the day after her arrival in the city. The McBurney incision was employed, and the appendix was found only slightly adherent, kinked, somewhat swollen and thickened. The lumen was ecchymotic and con-

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tained a spot of beginning ulceration about the size of a small pea. The stump was quickly invaginated into the slightly congested caput. Before closing the wound search was made for the uterus in order to determine its position. The fundus could not be felt through the incision. A rectal examination was then made, and the uterus was discovered to be completely retroverted, the fundus lying at the bottom of Douglas' pouch. Ventrosuspension was at once determined upon, and immediately carried out through a two-inch median incision, one silk stitch being used for suspension. The adnexa were normal.

The patient was on the operating table one hour; there was no rough handling of the intestines, and only six ounces of ether were used.

The patient passed a sleepless night, suffering unusually severe pain. At the end of twenty-four hours the abdomen began to distend, nausea and vomiting increased, and there was constant and distressing gagging.

This may be accounted for by the fact that, by reason of over-persuasion, I was induced to allow morphia hypodermatically eight hours after the operation. It was repeated twice, so that she received in all five-eighths of a grain in the first twenty-four hours. For three days her condition was alarming. The temperature did not rise above 101⅕°, but her pulse average was 124 and at times weak. The abdomen became enormously distended and she suffered agonizing pain, which was increased by constant retching and unusual thirst. Every measure was undertaken for her relief. She was stimulated with strychnine, digitalis, and whiskey. Nutrient enemata were administered at intervals; calomel every hour, followed by salts, and high enemata of magnesia, glycerin, turpentine, and water, and the rectal tube for the relief of flatus. It was only after the third day that we succeeded in obtaining evacuations and the free expulsion of flatus. For the intense thirst, and for its favorable effect upon the circulation, hypodermoclysis of normal salt solution was tried. A pint under each mammary gland was followed by decided relief from thirst and improvement in the force and frequency of the pulse; it became stronger and dropped from 132 to 108 in half an hour. With the disappearance of the distension her general condition steadily improved, so that at the end of three weeks she was able to leave her bed.

The wounds did very well except for a small sinus at the

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lower angle of the hysterorrhaphy wound, which suppurated, but closed after a short time; also, at the upper angle of the appendical wound a sinus developed, which closed after a few weeks. The patient has since been steadily gaining in weight and strength, and appears now to be in perfect health.

I have reported this case at some length, hoping that it may draw out a discussion upon the following points:

How may we differentiate between beginning sepsis and intestinal paresis during the first twenty-four hours?

What is the cause of intestinal paresis in these cases?

Why do some cases die of intestinal paresis following abdominal operations?

What measures should we adopt for its relief?

112 SOUTH SEVENTEENTH STREET.

OPERATION FOR THE RESTORATION OF THE URETHRA AND FOR THE CLOSURE OF A VESICO-VAGINAL FISTULA INVOLVING THE NECK OF THE BLADDER.[1]

BY

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OPERATIONS for the closure of vesico-vaginal fistulæ have been so perfected that the closure of such fistulæ, at one time the despair of surgeons, can now be accomplished with the certainty of success in almost all cases, even those involving the most extensive destruction of the base of the bladder. Fistulæ involving the neck of the bladder are among the most difficult to close, and cases complicated by destruction of the urethra have long taxed the ingenuity of surgeons. Fortunately such cases are rare, and but few gynecologists, even those of extensive experience, have met with them. Probably Dr. Emmet has had a larger experience in dealing with such cases than any other operator. He states[2] that he has succeeded in restoring the whole urethra by plastic surgery in six or seven cases, and only partially so in others. Emmet portrays most vividly the

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, December 16, 1897.

[2] "Principles and Practice of Gynecology," 1884, p. 840.

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difficulties of these operations, and states that he is less inclined than formerly to operate upon them because of the slim chances of success or permanent benefit from such procedures. Olshausen[1] reports three cases in which he has performed the operation of restoring the urethra. In two of the cases he was successful, but the third was a failure. I have not had time to make a careful search through medical literature for all the operations reported, but there is no doubt that the number is small. The following case has come under my own observation, and I report it as an encouragement to others to attempt the cure of similar injuries.

Mrs. S., age 52, white, American, the mother of three children, has had good health until 1896. Nothing in her history bears upon the subject of this report. At the age of 49 she noticed, especially when tired, a throbbing referred to the rectum. On account of the continuance of this symptom, in March, 1896, she consulted a physician in Reading, Pa., who stated that an immediate operation was required to prevent invalidism. The operation was performed, and was followed by some leakage of urine, which became profuse after the removal of the stitches on the eighteenth day. The primary operation was said to be for the removal of a "blue spot" on the anterior vaginal wall. In the attempt to repair the opening in the bladder the doctor operated seven times. Four of the operations were performed without general anesthesia. From the patient's statement it is apparent that various suture materials were employed in the different operations, including harelip pins; after some of them a drainage catheter was used, and after others it was not employed. All of the operations failed. At this time a mass projected through the fistulous opening, which she was told was a polyp, and it was proposed to remove this. She then consulted her family physician, who told her that the supposed polyp was the prolapsed wall of the bladder. This resulted in the discharge of the doctor who had made the fistula; and, upon the advice of her family physician, a well-known gynecologist of this city was called in, who operated upon her twice in Reading and twice in a hospital in this city. Union was not secured.

Mrs. S. consulted me November 16, 1897, and on examination I found that the entire inferior wall of the urethra was gone and that a fistula existed involving the neck of the blad-

[1] "Ueber Urethroplastik." Zeitschrift für Geburtshülfe und Gynäkologie, Band xxxii., Heft 3.

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der. The situation of the urethra was marked by a strip of mucous membrane continuous above with the vesical wall. The opening into the bladder was large enough to admit the index finger. The edges of the fistula were cicatricial, and upon each side of the urethra extensive cicatrices were present, probably the result of incisions made at the various operations to relieve tension on the sutures. After some of the operations there must have been considerable destruction of tissue, as a large amount of cicatricial tissue was present.

The mental condition of the patient was very bad, being due, doubtless, to the failure of the eleven operations to effect a cure and to the constant annoyance of the discharge of urine. November 20 I operated upon her at the Kensington Hospital for Women. As a preliminary I procured a Sims sigmoid metallic catheter, whose diameter was one-third that of the usual catheter. The operation was performed as follows:

An incision was made along the edge of what corresponded to the original mucous membrane of the urethra from the meatus to the bladder. External to this line of incision a raw surface was made upon each side of sufficient breadth to make a firm urethral wall. The edges of the fistula into the bladder were then denuded, an effort being made in the denudation to secure as small a neck to the bladder as possible. Deep incisions were then made, parallel to the long axis of the vagina, upon each side of the proposed urethra, to secure flaps out of which to form the new urethra. On the left side it was necessary to detach the soft parts entirely from the pubic bone in order to overcome tension.

The sutures were introduced in the following manner: The small catheter was introduced and held in position; over this was sutured, with a running suture of No. 1 cumol catgut, the mucous membrane of the bladder and that of the new urethra; interrupted silver-wire sutures were then introduced to close the opening into the bladder and to form a new urethra. An effort was made to pass the sutures at the neck of the bladder in such a way as to catch, if possible, the muscular fibres which form the sphincter vesicæ. The silver-wire sutures were then tightened and twisted, closing the fistula in the bladder and building up a new urethral wall. To reinforce this line of sutures, and to secure an even better approximation, a silkworm-gut suture was placed between each of the silver-wire sutures. Sutures were then passed in the direction of the axis of the vagina to close in part the incisions made at each side

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of the restored urethra, and more especially, by approximating the ends of these incisions, to still further guard against tension on the restored urethra. The deep incision on the left side was then packed with gauze. The operation lasted about one hour and a quarter.

The next problem was to secure healing, and I determined to leave the catheter *in situ* until the newly formed urethra had firmly united. After two days the catheter became blocked by a deposit of urinary salts, after which time the bladder was washed out daily with boracic acid solution to overcome this difficulty. The catheter remained *in situ* until the twelfth day, after which it was removed daily for cleansing. The line of union healed by first intention throughout, although the tissue which made up the left side of the restored urethra was cicatricial in character and its vaginal aspect was bare of mucous membrane. Three weeks after the operation the deep incisions had filled up by granulation and only a small area remained for cicatrization.

The patient is able to retain her urine for from three to five hours, after which time she has not perfect control over the bladder and is apt to discharge a small quantity of urine if the bladder is not promptly evacuated.

I would like especially to call attention to two points in the technique of the operation, as I believe a successful result was dependent upon them. The first was the use of a very small catheter, which was left in position until primary union had been secured. I felt, and still feel, certain that an attempt to pass a catheter through a somewhat distorted canal daily or more frequently would result in the perforation of the canal and failure of the operation. The second point was the method used in suturing. By first restoring the mucous lining of the canal with a continuous catgut suture, it was possible to insure a narrow urethra of uniform diameter, and in the subsequent restoration of the wall of the urethra it was possible to disregard the urethral canal and to consider merely the building-up of a firm urethral wall. It was possible also to study the problem of tension more carefully. It was found necessary to make a very extensive detachment of the soft parts from the pubic arch in order to secure a flap of tissue without tension.

1637 NORTH BROAD STREET.

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THE ENUCLEATION OF A PAROVARIAN CYST WITHOUT REMOVAL OF ITS TUBE OR OVARY.[1]

BY

H. D. BEYEA,

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THE importance of conservative methods of treatment of the diseases of the uterus and its appendages seems to have been more seriously considered of late, and a distinct step in advance has occurred during the last few years. Many operators no longer think of removing the ovaries for follicular or cystic degeneration of these organs; even those of advanced sclerocystic changes are usually allowed to remain. This disease is now treated by ignipuncture or simple puncture with good success by Pozzi and others. Some operators have gone so far as to exsect a large follicular cyst and sew up the ovary. A diseased portion of the ovary has a number of times been excised and the patient afterward become pregnant and borne a child. Mathaei[2] in 1895 reported five cases of bilateral dermoid, and one case of bilateral multilocular oöphoronic cyst of the ovary where he removed the tube and ovary on one side and exsected cysts the size of a walnut from the other side, leaving a part of the ovary. Five of the six patients thus treated afterward became pregnant and gave birth to healthy children. In no case was there a return of the disease after from five to nine years. Kelly[3] has removed the tube of one side and the ovary of the other without hurt to the patient and with full restoration to health. The patient has since borne a child. Sänger replaces a prolapsed ovary by shortening the infundibulo-pelvic ligament. Martin now treats tubal pregnancy that has not advanced further than two or three months by vaginal section, removing the gestation sac and allowing the tube and ovary to remain. Strange to say, the last to follow along these lines of conservative effort is the subject which

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, December 16, 1897.

[2] Zeitschrift für Geburtshülfe und Gynäkologie, Bd. xxxl., p. 351.

[3] The Johns Hopkins Hospital Bulletin, vol. viii., No. 72.

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I wish to consider, and on which I wish to report a case this evening—the enucleation of a parovarian cyst without the removal of the adjoining tube or ovary. The only similar instance I have been able to find in the literature is that of a case reported by Kelly [1] in March, 1897.

If we remember the histogenesis and anatomical relations of these cysts, I think it will be understood how easily and with how little danger they can be enucleated and removed from their peritoneal capsule. Cysts of the parovarium (not Kobelt's cysts) originate from the vertical or longitudinal tubules of the parovarium and develop between the layers of the mesosalpinx, where they are freely movable, as the capsule is not adherent. Such cysts are thus enclosed in a peritoneal sac between the tube, ovary, uterus, ovarian ligament, and tubo-ovarian ligament. As they increase in size, up to a certain point. this peritoneal sac distends about equally and proportionately in all directions, so that the normal tube and ovary are separated, the ovarian ligament, which is rather a tense band, is stretched, and also the tubo-ovarian ligament. When the cyst attains a still greater size the distension of the peritoneal wall increases in the direction of least resistance toward the tubo-ovarian ligament, which ligament, being attached to the abdominal extremity of the tube, stretches the tube over the surface of the cyst. The tube and ovary are rarely diseased and, if the cyst were removed, would return to the normal condition. There is therefore certainly no reason why the small cysts and many of the large ones should not be removed and the tube and ovary left intact. There is no contraindication to such a method of treatment, except in those very rare cases in which the tube or ovary is obviously diseased, or in the case of very large cysts, and possible papillomatous parovarian cysts, which may be malignant.

The wall of the cyst proper is tense and resisting, composed of connective and unstriated muscle tissue, and the cyst wall contains no blood vessels, nor is there a distinct pedicle. The peritoneal covering is not adherent, and there are but few blood vessels beneath the peritoneum, the injury of which can be avoided if care is observed. Thus I believe the simple incision of the peritoneal capsule and enucleation of the cyst can be easily accomplished without danger, as in the case reported by Kelly, and the following one which I shall describe, together with the method employed.

[1] The Johns Hopkins Hospital Bulletin, vol. viii., No. 72.

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M. P., 26 years of age, single, domestic, a well nourished white woman, was admitted to the University Hospital on June 30, 1897. Her history was, that, except for the usual diseases of childhood, she has always enjoyed good health until her present illness. Her menstrual flow first appeared when she was 14 years of age, and had always been regular, appearing every twenty-eight days and lasting from three to four days. The appearance of the flow was always preceded by considerable pain. In December, 1896, she first noticed a tumor growing in the left iliac region, which gradually increased in size. The presence of the tumor gave her little or no trouble until about one month before admission to the hospital, when she began to complain of pain on this side and a sensation of dragging or bearing-down in the pelvis. These symptoms slowly grew worse; she became very nervous, lost somewhat in weight, had severe attacks of headache, and was compelled to give up her work. She was then sent to me by her physician. On making a vaginal examination I found a cystic, thin-walled tumor the size of an adult head filling the pelvis and extending into the abdominal cavity as far as the umbilicus. The uterus was retroposed, or displaced bodily backward, by this cystic tumor, which now occupied about the median line. The left ovarian ligament could be felt as a tense band through the vaginal fornix. The cervix was virginal and the hymen intact.

Celiotomy, July 2. On opening the abdominal cavity a parovarian cyst the size of an adult head was seen growing in the mesosalpinx of the left side. It was immediately punctured with a trocar, the fluid drawn off, and the tube and ovary of that side removed by the usual method. On inspecting the appendage of the opposite or right side, there was found here also a parovarian cyst the size of a large turkey egg. The tube was stretched over the superior surface, the abdominal ostium was patent, and the tube was not diseased. The ovary, as is usual in these cysts, occupied a position opposite that of the tube. The ovary was of normal size and shape and contained a number of small follicular cysts, but there was no marked sclerocystic degeneration. A small incision, perhaps a half inch in length, was made through the peritoneal capsule, or mesosalpinx, on the superior surface midway between the tube and ovary. This incision was carefully enlarged by tearing until of sufficient size to enucleate the cyst. In this manner the

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cyst was carefully but easily shelled out of the peritoneal capsule and removed without rupture. The cavity was carefully inspected a few moments for possible bleeding points, but as none were found the incision was closed by continuous fine silk suture. The small cysts of the ovary were punctured, the uterus ventrosuspended, and the abdominal cavity closed. The patient made an uneventful recovery and was out of bed twenty-two days after operation. Before leaving the hospital a vaginal examination showed the uterus and ovary in good position, the latter movable and, as far as could be determined, normal. The *anterior* surface of the stretched mesosalpinx was selected, as there were fewer blood vessels in this locality and as it was more accessible and there was less danger of adhesion to this surface of the broad ligament. The patient has menstruated regularly since the operation, and writes that she is perfectly well.

In the case reported by Kelly there were also present two cysts. One cyst was the size of a hen's egg; the size of the other was not mentioned. He treated the tumors in different ways, both giving the same result. In one, after ligating the larger vessels a little distance from the tumor, he made an incision through the peritoneum where the vessels were fewest, and easily shelled the tumor out of its bed, and then sewed up the peritoneum with a continuous catgut suture. On the other side he excised a portion of the redundant peritoneum while the circulation was controlled by the fingers of an assistant, turned the tumor out, and stitched up the wound with catgut. The uterus was retroflexed and therefore was ventrosuspended. Both ovaries were thus left intact. The patient made a perfect recovery, has kept her functions, is normal and regular and in good health. This operation would, of course, be of particular importance to young women and women in the prime of life.[1]

237 South Thirteenth Street.

[1] Since the above paper was written I have practised this method of treatment in a second case. The patient was a markedly neurasthenic woman, 33 years of age, suffering with retroflexion and a parovarian cyst in each mesosalpinx. The cysts were, respectively, the size of a turkey egg and large walnut. Celiotomy was performed on January 17. The cysts were enucleated as in the above case and the uterus ventrosuspended. The convalescence has been normal. The importance of this conservative plan of treatment in this case is apparent. Salpingo-oöphorectomy with the resultant induced menopause would, there is no doubt, have increased the symptoms of neurasthenia and made the patient a chronic invalid for several months.

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A CASE OF BOWEL OBSTRUCTION FOLLOWING AN ABDOMINAL SECTION.[1]

BY

J. M. BALDY, M.D.,
Philadelphia.

I REPORT this case because it is the only case of intestinal obstruction I have seen which began at this stage of the convalescence, practically when the woman was perfectly well, and went on with such a curious history to a fatal termination.

The woman was 35 years of age, the mother of several children; five years ago she had a chill followed by fever, distension followed by constipation and vomiting. During ten years she has had chronic constipation and "bilious spells." In the past two years she had two attacks. The case was a chronic one. The physician in charge had written me about the woman a month or two beforehand. He thought it was a pus case. She had an acute attack of laryngitis, was put to bed, and when she came to the hospital she had somewhat of a cough. An abdominal section was made, and the condition found to be an exceedingly bad pelvic one, with universal adhesion of the tubes and ovaries, without pus. It was very difficult to perform the enucleation. Hysterectomy was done, amputating at the neck, and the abdominal wound closed without drainage. I did not notice any other lesions in the abdomen. The operation was made through the ordinary incision two and a half or three inches in length, and no inspection made of abdomen above the incision. The patient did as well as these patients usually do. She had a practically uninterrupted convalescence for two days. At the end of that time the bowels opened. During convalescence the nurses informed me that her bowels were a little more stubborn than is usual in that class of cases. At the end of three weeks she was so well that I allowed her to get out of bed, and she was to go home at three and a half weeks. Four weeks is the usual time in which we permit these patients to leave the house, but this woman looked so well, had such rosy cheeks, and was one of the happiest women in the house, that an exception was to be made in her case. She had made all arrangements to go home, and her husband was com-

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, December 16, 1897.

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ing for her Saturday afternoon. She was perfectly well Friday afternoon when I saw her. To my surprise I found, Saturday, on making my rounds, that the woman had an attack of pain in the epigastrium, nausea, vomiting, and was quite ill. After talking to her a little I said, "If you will stay until to-morrow and not attempt to go home, I will make you feel all right." Although she was bitterly disappointed she agreed she would stay until Sunday afternoon. I gave her a hypodermatic of morphia and she was very comfortable. She did not get well, however; the vomiting was kept up the next day, and she was a sicker-looking woman than the day before. She showed the effects of two days' nausea. Again she complained very bitterly and wanted to go home whether or not. I told her she could go home if she wanted, but if she took my advice she would remain where she was under medical attendance until relieved. It appeared to be a typically severe bilious attack. I thought at this visit that a matter of a day or two's delay would render her again well. Meantime her pain was entirely in the epigastrium. The pains were very much benumbed and very much less frequent and severe than they had been. They were apparently just the remnant of what they had been formerly; the abdomen was soft. Medicine was given and apparently her bowels were opened. This thing continued two days longer. Although I was not worried about the woman, I thought it better not to have anything on her stomach and began to feed her by the bowels on Tuesday. In the meantime she had another hypodermatic of morphia, and the pains continued in epigastrium. Examination of abdomen revealed it to be perfectly flat; you could readily palpate any portion of abdomen. The woman continued on and was better, and for twenty-four hours she did not vomit. She appeared so much better that I put her back on a little milk peptonized, by mouth. It was not long, however, before she began to vomit again. In the meantime she was passing flatus, apparently having bowel movements, and it did not strike me until this time that the bowels were possibly not being opened. I began to suspect the probability on Wednesday. I could not be sure that the bowels had been opened with a real bowel passage. I recognized toward the end of the week, while it was true she was passing flatus and some semi-solid matter through the bowel, yet it was of doubtful character.

The day before, the nurses had brought me the basin of vomit, saying it was fecal. It smelled and looked fecal, and yet at the

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same time it was not sufficiently fecal to make me want to see a second specimen. I made up my mind, if the next one was of like character, to open the abdomen. She never vomited that character of vomit again. She did not vomit again until the next night, twenty hours later. She was better all this time. She had had a perfectly normal temperature up to the time she began to have these attacks. Her temperature ran up the first day to 102 points and then dropped to 98, varying from 98 to 99½ during the week. The pulse reached 120 once, but ran from 104 or 110 to 98, mostly at about 104. It was a good, full, round pulse. The woman looked sick all the time, and this was the only thing that had worried me until the middle of the week came along. The day after she vomited, the nurse brought a large stool to me, but I could not say it was anything but decomposed nutrient enemata and that she was really having her bowels opened, nor could I satisfy myself that the woman's bowels had opened a single time. All the time she was passing flatus that was evidently decomposition of nutrient enemata. Thursday or Friday I made up my mind pretty fully that the bowels were not being opened from above. I stopped the enemata and gave drugs for the purpose of settling the question as to whether the bowels were moving or not. She was ordered and received six grains of calomel in half-grain doses every hour until they were all taken. There was no result. In the meantime the pain had shifted to the umbilicus. In the early days it was absolutely in the epigastrium, then settled lower between epigastrium and umbilicus. Her abdomen at this time, on Friday or Saturday, was perfectly soft; you could palpate the entire abdomen throughout, and it seemed impossible that there could be any obstruction. The calomel was followed by salts: no result. She was then ordered a compound cathartic pill every hour until she had six: no results. She was apparently better during this time, but there was no bowel movement. I made up my mind that I would resort to one other method before operating. One day the woman was better, the next day worse, all the time passing flatus, all the time passing something we took for fecal matter; all the time with a soft abdomen, at no time distension of abdomen. I ordered four drops, in drop doses, of croton oil; if she vomited it was to be stopped. She rejected the first dose about as soon as it was down; she had three more doses at two-hour intervals. She retained all but the last one, which she vomited;

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from this time on vomiting was persistent, and at 5 o'clock in the morning she was in collapse and at 11 o'clock she was dead. The collapse came on so suddenly there was no time to do anything. The oil did the work, in my opinion. I never propose using it in future. When in another such case the time comes for croton oil, I will look on it as an absolute sign for operation. I have never yet seen a case of septic peritonitis or bowel obstruction that got croton oil get well. It is true, I never give it except as a last remedy; but I am through with the drug.

I was exceedingly anxious to get a postmortem, but I did not like to ask the husband for it while the woman was dying. I thought myself that it was too late to do an operation, but told the husband and also the nurse, a friend of the patient's, if they wanted it done I would do it. They both decided they would not have it done. I asked her physician to obtain a postmortem. His letter speaks for itself:

DEAR DR. BALDY:—This morning, in the presence of Dr. B. and Miss H., the nurse, I held a postmortem examination on Mrs. M. Of course your diagnosis was correct. The condition was curious. The pelvic floor was perfect, with no inflammatory deposits, everything was as slick and clean as possible, but the obstruction began at the ileo-cecal valve and extended some eight inches back along the small intestine. Two knuckles of bowel were adherent to the abdominal incision at its upper end very firmly. The walls of about two-thirds of the small intestine were infiltrated with a hard deposit very much like old atheromatous arteries. At the beginning of the ileum (its upper end) were many old bands of adhesions extending in all directions, looking almost like catgut formations (there were so many), and I presume one of these flimsy bands ruptured when she experienced the sensation of a something snapping. The postmortem settled to our satisfaction two things:

First, that the operation had nothing to do with the death directly, and

Second, a secondary operation would not have been of any service, but would have only hastened death. The family are perfectly satisfied, and realize that all was done that could be done. It was unfortunate, but could not be helped. . . .

Sincerely yours,

J. H. SHOEMAKER.

1722 CHESTNUT STREET.

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TWO CASES OF ECTOPIC PREGNANCY TWICE IN SAME PATIENT.[1]

BY

C. B. SCHOOLFIELD, M.D.,
Dayton, Ky.

THE subject of ectopic pregnancy has been so frequently and fully discussed by the members of this Society that I feel that an apology is due them for again presenting it. The infrequency, however, of a second occurrence in the same patient may justify me in reporting the two following cases with a few appended remarks:

CASE I.—Mrs. C. C., age 27, was operated on February 8, 1890, by Dr. Thaddeus A. Reamy; case reported to the Academy of Medicine and published in *Lancet Clinic* December 20, 1890. Her health after operation remained good, and menstruation regular up to and including November 15, 1893. She missed her regular period in December, 1893, which was followed by signs of pregnancy, such as morning sickness, enlargement of breasts, etc. January 1, 1894, had slight and irregular flow with colicky pains, lasting one week. February 25 she had more severe pains, with syncope followed by slight hemorrhage. March 8, took a short ride in a carriage, which again brought on the "flow." She remained in bed after this until April 29, when she was allowed to sit up, but was compelled to lie down on account of faintness. May 6 Dr. Arthur Johnstone was called in consultation. Owing to constipation and a distended rectum a satisfactory examination could not be made. She was given a cathartic and bowels emptied, Dr. Johnstone returning the next day. The abdominal walls were so thick and the uterus drawn up so high that its size and shape could not be made out, but to the right could be felt a tumor the size of a small orange. Taking all the symptoms, so similar to her former tubal pregnancy, together with the lump to the right of the uterus, it was Dr. Johnstone's opinion, in which I fully concurred, that it was tubal pregnancy ruptured into the broad ligament. The patient made a perfect recovery and is enjoying perfect health at this time.

CASE II.—Lucy B., age 29, was operated on by myself June

[1] Read before the Cincinnati Obstetrical Society, September 9, 1897.

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29, 1892, for abdominal pregnancy three months after full term and death of child; case reported to the Academy of Medicine of Cincinnati, O., and published in *Lancet Clinic* December 3, 1892, vol. xxix. She made a good recovery, remained in good health, menses regular, until February, 1896. Her husband came to see me in April, 1896; said his wife was pregnant and suffering so much from vomiting and pain that she wanted me to come and see her. As I had attended her in former trouble through charity, and as she lived in an adjoining city and was in the hands of a competent physician, I refused to go—not knowing, of course, that it was other than normal pregnancy. In a few days she sent one of her neighbors, who said she was in a very bad condition and begging for me to see her; I agreed to see her with her physician. She had a high fever, distended abdomen extremely sensitive especially over the left iliac and right hypochondriac regions, and was profoundly icteric. A tumor could be seen and felt in the left iliac region, and on digital examination a large, fluctuating mass could be felt pushing the uterus to the right. She gave a history of irregular menstruation with colicky pains, of shock with syncope, and the passage of a pseudo-deciduary membrane. She had general peritonitis, and the symptoms indicated suppuration in the sac. Diagnosis, ectopic pregnancy. Dr. C. L. Bonifield was called the next day, May 10, in consultation, and concurred in the diagnosis, and we both ventured the opinion that her case was complicated with stone in the gall bladder. She was sent to the Good Samaritan Hospital on the 11th. Dr. Bonifield operated on the 12th. An incision was made immediately behind the uterus, a large quantity of organized blood clot with the fetus of about three months' gestation and a part of the placenta was turned out, the cavity flushed with hot sterilized water and packed with iodoform gauze. The patient died about three hours after. An autopsy was held thirty-six hours after death. A calculus the size of a pigeon's egg was found in the gall bladder. The left tube was ruptured and contained a portion of the placenta. The adhesions were so dense that it was impossible to get the uterus and appendages out in a condition for satisfactory examination, and no microscopic examination was made.

As stated in the beginning of this paper, but few cases have been reported in which ectopic pregnancy has occurred twice in the same patient.

The list of recurrences, as far as I am able to collect them,

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are as follows: Lawson Tait, one, confirmed by autopsy; Hayden, one, confirmed by autopsy; Veit, Jr., one, confirmed by laparatomy, recovery; Carl Beck, one, confirmed by laparatomy; K. Abel, one, confirmed by laparatomy; J. M. Duff, one, confirmed by laparatomy; J. F. W. Ross, one, confirmed by laparatomy; H. C. Coe, one, confirmed by laparatomy; E. Herman, one, confirmed by laparatomy. Other cases are reported by Veit, Jr., Kletsch, Olshausen, Langenbeck, Van Heukelom, Frommel, Leopold Meyer, Mackenrodt, and Winckel, but not verified by abdominal section or autopsy. Coe's and Hayden's cases were the most remarkable, being examples of second occurrence in the same tube. Notwithstanding the exhaustive study that has been given this subject, the etiology is in some respects obscure. Until the point at which fertilization of the ovum takes place normally is fully established, our knowledge of its physiology and pathology must be imperfect. Normally we have three factors that carry the ovum to the uterus: the peristalsis of the tube, the cilia, and the wave or current that exists between the peritoneal cavity and the uterus, interference with any or all of which may be the cause of tubal pregnancy. Twists of the Fallopian tube due to arrested development, inflammatory conditions that paralyze, bind down, or occlude the tube or destroy the cilia, uterine or ovarian neoplasms, and diverticuli of the tube, are principal factors.

There are but two points in regard to the treatment to which I wish to draw your attention and elicit discussion: one, the choice of methods of operating; the other is our duty in regard to the remaining appendage.

The route usually selected is the abdominal, and in a majority of cases it is probably the best; but there are many, among these second occurrences especially, in which the vaginal route is to be preferred. In such cases as the one just related, where the first was an abdominal pregnancy and the sac left, the adhesions are so extensive as to make celiotomy extremely difficult, if not impossible; besides, these adhesions act as a barrier against excessive hemorrhage and limit the loss of blood. In the earlier stages of pregnancy, where the tube has ruptured and active hemorrhage has ceased, or if there are indications of suppuration, the vaginal route offers the best means for removing the contents of the gestation sac and drainage. The patient should, of course, be prepared for laparatomy in case active hemorrhage should occur during the vaginal operation.

The duty of the operator with reference to the remaining

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tube is a grave one. If no children have been borne and there is an earnest desire for offspring, it would be an additional calamity to deprive the woman of this hope. If there are no macroscopic evidences of disease our scruples might be easily allayed, but should there be deformity of the tube or the slightest evidence of disease the responsibility of leaving it should rest with the parties themselves, after the danger of so doing is fully explained to them. After hearing the report of Dr. Hall's case at our last meeting, it appears that ocular evidence is not sufficient to prove that it is safe to leave even an apparently healthy tube behind, and in the future the writer would feel it his duty to place the patient beyond such a possibility, or, as stated above, let the responsibility rest with those most liable to suffer.

631 SIXTH AVENUE.

TWO SUCCESSFUL CESAREAN SECTIONS.[1]

BY

G. M. BOYD, M.D.,

Lecturer on Obstetrics to Medico-Chirurgical College; Physician to the Lying-in Charity, Philadelphia.

CASE I. *A Second Elective Cesarean Section for Rachitic Flat Pelvis.*—Mrs. C., married, age 30 years, was admitted to the Philadelphia Lying-in Charity, August, 1897. She was pregnant for the second time and well advanced in the last month of gestation, having seen her last sick period November 9, 1896. She began to menstruate at her fourteenth year, the flow being normal. Although slight in build, being only five feet in height and of rachitic type, she has always been healthy. In September, 1892, five years before she came under my care, she was delivered in the Kensington Hospital for Women by Dr. C. P. Noble, he performing the elective Cesarean section.[2]

The following are some notes from the report of this operation: "Mrs. C., age 25, primipara; menstruated last, December 20, 1891. She consulted me late in February to learn whether she was pregnant. The examination showed that she

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, January 20, 1898.

[2] Annals of Gynecology and Pediatrics, January, 1898.

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was pregnant, and also that the pelvis was markedly contracted. A careful examination was made, with the following result: Height five feet, build slender, moderate lateral curvature of the pelvis, 'pigeon breast,' but no other well-marked sign of rickets. The pelvic measurements are: intraspinous, 27.5 centimetres; intracrystal, 28.5 centimetres; external conjugate, 17.5 centimetres; diagonal conjugate, 8.75 centimetres; true conjugate, 6.75 centimetres, or 2¾ inches. The diagnosis made was scolio-rachitic flat pelvis. Mrs. C. was advised to return when seven months pregnant, so that the question of the induction of premature labor could be determined, as against permitting her to go to term to be delivered by Cesarean section. She did not return, however, until the thirty-sixth week of pregnancy. In my judgment the baby was too large to admit of its delivery alive. At this time I asked Drs. Boyd, Harris, and Parish to see her. All agreed that delivery per vias naturales of a living child was impossible, and the Cesarean operation was determined upon.

"Symphyseotomy was considered, but rejected on the ground that the pelvic deformity was extreme for the operation. In addition I felt quite satisfied that the mother and child could be saved by the Cesarean operation, and feared that it might be necessary to sacrifice the child if symphyseotomy were done."

The operation was performed September 28, 1892, at which I assisted. The puerperium was uneventful, and the mother and child left the hospital in good condition.

With the history of this artificial delivery and the patient again in the last week of gestation, a second Cesarean operation seemed to be the only procedure for a successful termination of the case. The staff of the hospital agreed with me in this opinion. Examination of the patient proved the fetus to be of good size, presenting by its pelvic pole. The following measurements were made: circumference of pelvis, 90 centimetres; circumference of abdomen, 86 centimetres; distance of fundus above symphysis, 31 centimetres; intraspinous, 27 centimetres; intracrystal, 28 centimetres; external conjugate, 17 centimetres; diagonal conjugate, 8.5 centimetres; true conjugate, 7 centimetres.

After having explained to the patient the gravity of her condition, and having gained her consent, she was taken to the operating room on August 12, 1897. Under ether narcosis, and with the direct assistance of Dr. Oliver Hopkinson, a free incision was made through the abdominal wall to the side of

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the old linear scar. Several omental adhesions were now loosened; then it was found that the uterus and abdominal wall were firmly united at the lower angle of the old incision. The uterus showed no evidence of the result of the first operation. The silk sutures used could not be found. Although this strong attachment between uterus and abdominal wall interfered with the compression of the lower segment of the uterus in case of hemorrhage, it did not seem wise to make the dissection. A clean incision was now made, parallel with the long axis of the uterus, just sufficiently large to permit the extraction of its contents.

The fetus, presenting by its pelvic extremity, was now slowly delivered, head first. Then, allowing the uterus to contract upon its contents, the placenta and membranes were slowly removed. The cavity of the uterus was now flushed with hot water and wound closed with twelve interrupted through-and-through silk sutures just escaping the mucosa. The peritoneum was also flushed with hot water and the wound closed with interrupted silk sutures. A sterile gauze pad covering the incision and a pressure bandage completed the dressing. The infant, a vigorous female, weighed 7¼ pounds. Its length was 61 centimetres. Measurements of fetal head were as follows: suboccipito-bregmatic diameter, 9.5 centimetres; occipito-frontal diameter, 11.5 centimetres; occipito-mental diameter, 14.5 centimetres; biparietal diameter, 9.5 centimetres; circumference, 34 centimetres. The puerperium was uneventful.

On the thirteenth day the wound was first examined and the stitches removed. Lactation was early established, and thirty days after the operation mother and child left the hospital in good condition. On January 12, 1898, five months after the operation, I saw Mrs. C. and examined her. She is in very good condition, able to attend to her household duties and care for her two children.

CASE II. *Cesarean Section for Coxalgic Pelvis.*—Mrs. F. was referred to the Medico-Chirurgical Maternity in October, 1897, by Dr. R. M. Quig, of Honey Grove, Pa. She is an American, married, age 24 years; a secundipara in the last month of gestation. Her menstrual history began at her seventeenth year, the period always painful, irregular, lasting six days. Her father is living, her mother died of tuberculosis; she has one brother and one sister, both living. She has had the usual diseases of childhood. When she was 3 years old

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she had scrofula, and at her fifth year developed hip-joint disease, which resulted in ankylosis of the hip joint. She went about on crutches until her twelfth year. In June, 1896, after being three days in labor, she was finally delivered of her first child by craniotomy.

After this operation her menstrual periods did not return. She was treated for supposed ovarian disease until June, 1897, at which time a second pregnancy revealed itself in quickening.

Examination of the patient on admission to the hospital proved her to be pregnant, near term. She is five feet in height, and in standing posture the right leg was partly flexed and ankylosed, the heel being three inches from the floor. The abdomen was large and pendulous; the fetal ovoid, presenting by its cephalic pole, was freely movable in the false pelvis and resting in the right iliac cavity. The pelvis was obliquely contracted, with the right crest of the ilium higher than the left.

The following measurements were made: intraspinous measurement, 23 centimetres; intracrystal measurement, 26 centimetres; right oblique, 20 centimetres; left oblique, 22 centimetres; external conjugate, 18 centimetres; true conjugate, 8.5 centimetres.

Internal examination revealed the fact that the pelvis was greatly deformed and that the head was freely movable above the brim. With the history of a difficult cephalotripsy and the patient desiring a living child, we decided upon a Cesarean section. It was our purpose to perform the elective operation, and arrangements were made accordingly for the following day; but during the night the patient fell in labor, and I was not notified of it until the following morning, when I found her in active pain. Operation was performed October 16, 1897, at 1 P.M., the patient having been in labor ten hours with no advance of the presenting part. With the assistance of Drs. Schell and Barnhardt a free abdominal incision was made, then a second incision into the uterus longitudinally to its long axis. This incision was accompanied with a free hemorrhage, owing to the fact that we had cut down upon the placental site. The placenta was now stripped from the left and lower side of wound. The membranes were ruptured, and slowly the infant was removed by the feet. It was slightly asphyxiated, owing to the pressure occasioned by the futile efforts of the uterus to expel its contents. The infant was a female weighing eight and three-quarter pounds. The uterus, with the aid of a hot douche, rapidly contracted on its contents, and by compressing

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the lower segment the hemorrhage became less alarming. A second hot intrauterine douche was now given to wash away the clotting blood. The uterine incision was now carefully repaired with interrupted fine Chinese silk; then the abdominal wall was repaired in the same manner with silkworm-gut sutures. The patient made a rapid recovery and in four weeks left the hospital with her nursing infant.

The first case reported is of interest in that the patient has two living children, the result of the elective operation. Even if the pelvic measurements had been more favorable, with the breech presenting, symphyseotomy would not have been prudent. In the second case the indication for the operation was an unusual one—an obliquely contracted pelvis resembling somewhat the true Naegele pelvis. An interesting step in this operation was the complication encountered in cutting down upon the placental site. By separating the placenta on one side, the fetal circulation was retained until the child was delivered. This course, to me, seems better than a direct incision through the placenta, or the delivery of the placenta before the delivery of the infant. Both patients being in good condition, the operation premeditated, not performed as a last resort, celiohysterotomy was performed. I believe, also, that it is a more simple and a safer operation than is celio-hysterectomy.

Celiohysterectomy should be performed when the uterus is infected, when it is the seat of a myoma or a malignant growth, also when the patient desires its removal. Celio-hysterotomy should be performed when the uterus is healthy, when the patient does not want the uterus removed.

To perform a celio-hysterectomy simply for the purpose of preventing future pregnancies seems to me unwise, if by simply ligating or removing the Fallopian tubes (a less mutilating operation) we can accomplish the same purpose.

1953 LOCUST STREET.

IN MEMORIAM.

THEOPHILUS PARVIN, A.M., M.D.

THEOPHILUS PARVIN was born at Buenos Ayres, in the Argentine Republic, on January 9, 1829. He was the son of a Presbyterian missionary. When quite young he was sent to

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this country to be educated, and attended school in Philadelphia. At the age of 11 he entered the preparatory department of Lafayette College. At 14 he went to the State University of Indiana, from which he graduated in 1847. His next three years were spent as a teacher in the high school at Lawrenceville, N. J. During this time he also studied Hebrew at Princeton Theological Seminary. He received his degree of M.D. from the University of Pennsylvania in 1852. He was interne at the Mills Eye Hospital for one year, and then served for a time as surgeon on the clipper ship *Tonawanda*. He settled in Indianapolis, where he practised until the close of the war, when he accepted the professorship in materia medica at the Ohio Medical College in Cincinnati. In 1869 he became professor of obstetrics at the Indianapolis College, and later held the same chair at the University of Louisville. In 1883 he was made professor of obstetrics and diseases of women and children in Jefferson Medical College, which position he held at the time of his death.

He was a prominent contributor to obstetric literature, and is probably best known through his work on "The Science and Art of Obstetrics." He was an honorary fellow of the Berlin Society of Obstetricians and Gynecologists and of the Edinburgh Obstetrical Society, and was an honorary president at the Berlin International Congress in 1890 and at the Brussels Congress in 1892. He was an ex-president of the American Gynecological Society, the American Medical Association, the American Academy of Medicine, the American Medical Journalists' Association, the State Medical Society of Indiana, and the Philadelphia Obstetrical Society.

After having been seriously ill for a month from cardiac and renal disorder, Dr. Parvin died on January 29, 1898, the immediate cause of death being pulmonary edema. By his death America and the medical profession have lost a scholar of rare attainments, a man of high personal character, of decided opinions, of great professional skill, and one of marked ability as a teacher.

JULES ÉMILE PÉAN, M.D.

At the funeral services of the late Dr. Péan, in the Church of the Madeleine at Paris, Dr. S. Pozzi was one of four to pronounce an oration upon the distinguished surgeon. His words were, in substance, as follows:

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Jules Émile Péan was born in 1830 in the neighborhood of Chateaudun, and at the age of 23 years became interne in a hospital. Denonvilliers and Nélaton were his favorite instructors, and the latter in especial exerted a great influence upon his mental growth. In 1860 he became prosector of the hospitals; in 1868, surgeon of the "Bureau Central." He taught anatomy and operative surgery from his earliest medical days, and, as soon as he became head of a surgical service, began a course of clinical instruction which lasted uninterruptedly throughout his whole hospital experience. In 1892, when the age limit of his public services was reached, he founded the International Hospital, in which he continued to operate and to impart instruction. For more than thirty years Péan's was one of the foremost places in French surgery by virtue of his hospital teachings, his published writings, his practice, and his world-wide reputation. He introduced several operatory methods of the greatest importance and invented numberless ingenious procedures. Either directly or indirectly, all the contemporary masters of abdominal surgery are graduates of his school.

Péan was not a specialist in any narrow sense of the word. He was skilled in general surgery; he operated deftly for cataract; he devoted much time to osseous and plastic surgery. None the less is it the fact that the great renown won by him as a result of his operations upon the uterus and ovaries almost forced him into special surgery. To the world at large, and to a large part of the medical profession, Péan was above all a gynecologist. His therapeutical discoveries were nearly all related to this branch of the art.

In 1864, when he was still prosector, he performed the first ovariotomy in Paris to result successfully. Spencer Wells in Paris, and Koeberle in Strassburg, to say nothing of several American surgeons, had anticipated him, but the air of Paris appeared to be poisoned so that inflammation followed every opening of the peritoneum. Even the great Nélaton had failed, and consequently the success of the young prosector in 1865 made a stir in the medical world of Paris. In 1866 he cured one patient of ovarian cyst by ovariotomy, and another of fibrous tumor of the uterus by abdominal hysterectomy. In 1867 he reported the case of a young girl upon whom he had successfully performed splenectomy, and in 1869 he removed a uterus and both ovaries by laparatomy. By the year 1871 Péan's reputation was established, and pupils came from near

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and from far to receive his instructions. Thus the first round of the ladder of fame was surmounted by the perfecting of the technique of ovariotomy and of hysterectomy.

Péan's second claim to the gratitude of all surgeons is the systematic use of forcipressure forceps, and their perfection and adaptation to special use. Rival claims have not robbed him of the credit which belongs to him; if not the first to compress the blood vessels to secure hemostasis, he was the first to do so regularly and intelligently. He did not report his experiences with forcipressure to the Academy until 1875, but he used the method in his earliest operations. It was during these operations that he conceived the idea of removing large fibromata piecemeal, so as to facilitate their extraction without enlarging the primary incision. The results were not satisfactory, but it is well to bear in mind that this was the origin of the process of "morcellement" of large tumors through the natural passages. By combining this method with forcipressure we are enabled safely to remove many tumors which could scarcely be taken away through the abdomen. Finally, we owe to Péan the removal of the uterus and ovaries (utero-ovarian castration) through the natural passages in certain cases of suppuration or inflammation of these organs. This procedure is valuable when subject to certain definite laws and restrictions.

Péan's writings, somewhat prolix and heavy in style, and his speech which was lacking in brilliancy, did not contribute to the knowledge and adoption of his discoveries, as did his demonstrations, his operations at the hospital performed in the presence of an audience gathered from the four quarters of the earth to study his methods. To be appreciated at his true value he should have been seen at his work. He towered in height above his assistants, directing them in his strong and slightly rough voice, but with a total absence of brusqueness and without ever faltering. His immense hands were possessed of marvellous dexterity in even the most delicate maneuvres. Ankylosis of the index finger of his right hand did not prevent him from making the finest intestinal sutures without the use of a needle-holder. Unexpected occurrences during the course of an operation had no power to disturb his self-control, and he showed a general's skill in devising new methods and plans upon the very battle-field itself.

For nearly forty years his activity was prodigious. Only ten years ago it was his custom to rise at 4 o'clock in the morning

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but since that time he was induced to rest until 6 o'clock. He worked two or three hours and then went to the hospital or attended to his practice until 2 or 3 o'clock. Should he have no consultation to detain him it was then his custom to go out again until about 9 o'clock, when he finally came in to rest.

In spite of the popular belief that the constant sight of blood and of suffering induces a professional hardening of the sensibilities, Péan had not become unsympathetic. He knew how to pity and his endeavor was to comfort the sufferer; his charities were the astonishment of many who could scarcely realize that a heart susceptible of emotion could beat in that athletic frame. At 67 years of age he possessed vigor and activity in an uncommon degree, and his death was like a thunder-clap to his family and to the world at large.

The Wednesday before his death, January 19, Péan, as usual, attended to his duties at the International Hospital. His day was full of fatiguing work, and in the evening he went to see some patients upon whom he had operated in a sanitarium. Saturday evening, in spite of lassitude, he insisted upon working in collaboration with his secretary. Sunday he was seized with a severe chill, and three days later what had appeared to be simply grippe took on the aspect of a serious attack of pneumonia. From that moment he knew that there was no hope for him. His family was present with him, with the exception of one daughter who was herself ill in bed, and he put off summoning her till the last minute, in order to give her all the time possible to recover. Finally, on Sunday evening, January 30, he sent for her, speaking openly about his condition to those who were with him. While awaiting the arrival of his daughter he for the first time manifested anxiety as to the rapid decline of his strength, and felt his pulse, following its intermissions with interest. When she arrived, "Now I can die," he said, and, as if he had simply been waiting for that comfort of her presence, ceased the useless struggle for life.

Happy the man who dies in the harness and who leaves behind him useful and durable works to perpetuate his memory!

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CORRESPONDENCE.

[The following letter from Dr. Currie, although personal and not intended for publication, contains several little points of value, and I take the liberty of inserting it here.—THE EDITOR.]

PICTON, Ontario, Canada.

DEAR DR. WELLS:—While taking my holidays I have been doing a little operating, and the exigencies of country practice have suggested a few points which had not occurred to me in the city. None of these points are worth putting in the shape of an article. . . . Accordingly I have decided to donate the ideas to you, hoping that they may prove useful in some way.

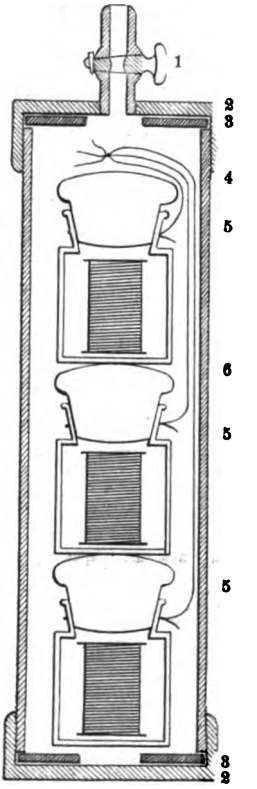
One of the first things that struck me was the difficulty in getting a room properly cleaned without the assistance of a trained nurse. I think I surmounted this difficulty to a certain extent as follows: I had the room cleaned as well as the friends of the patient could do it. I then selected as the operating room that in which the patient was to remain during convalescence, this being the lightest room in the house. The patient's bed was prepared in this room the night before the operation. I then borrowed the formaldehyde disinfector from the medical health officer and went through the usual procedure of disinfecting the room. Four hours after the disinfection the formaldehyde was neutralized by ammonia. This room was then kept shut off from the rest of the house until the time of operation as much as possible. In this way I think we had a clean room, to a certain extent aseptic air, and after the operation we placed the patient in aseptic bedding. Of course it would be better to have a separate disinfected room to place the patient in after the operation, but that would not be possible in most cases here. In one room I placed a swab, soaked with pus and diphtheria germs, before the room was disinfected. After the disinfection the swab was sent to Toronto, where it was reported sterile. The formaldehyde disinfector is also a very handy thing to turn on your clothes after seeing infectious cases. The clothes can be placed in a tight closet, and the whole thing only takes a few moments. It strikes me

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there would be less erysipelas, septicemia, etc., carried about if every doctor had a disinfector. We have been using it here principally after seeing diphtheria cases.

The next thing that gave me trouble was the catgut. This is rather an out-of-the-way place and reliable catgut is difficult to obtain. Besides, we lose a great deal which is opened, soiled, and only partly used. After scratching my bald spot a good deal I devised an apparatus which cost me $1.60 and has already paid for itself, to say nothing of the satisfaction of knowing what you are using (see figure).

Method of Using Apparatus.—Fill the bottles containing catgut (previously washed in water) full of alcohol. Insert the stoppers loosely. Tie a silk thread around the neck of each bottle. Unscrew from the tube the upper cap, 2, containing the stopcock 1. Lower the bottles into the tube. Knot the ends of the silk threads and drop the knot on the upper bottle. Fill the tube with alcohol above the surface of the upper bottle. Screw the caps *very firmly* on to the tube. Take the tube by the stopcock 1, and hold it in a pot of boiling water, leaving the stopcock open. When the alcohol begins to boil and the air is expelled, turn the stopcock and drop the whole tube under the surface of the water. The catgut is thus boiled in alcohol at 100° C. When the boiling is completed and the tube is cooled, the bottles are removed by catching the knot, 4, with a pair of forceps. The stoppers are then screwed tightly into the bottles. The boiling is to be repeated in the next two days. If it is desired to boil once at 250° F. a pot of oil must be used, the temperature of the oil being regulated by a thermometer.



Catgut sterilizer (cut about half actual size). Description of apparatus: The entire apparatus is made of brass one-eighth inch thick; 1, a brass stopcock; 2, a brass cap which, by means of a fine thread, can be screwed firmly on the brass tube 6; 3, a rubber washer; 4, knotted ends of the silk threads tied around the necks of the bottles 5, containing catgut, and used to lower them into the tube; 5, bottles containing catgut; 6, side of brass tube.

How to get the Apparatus.—Draw the above figure. Send to any brass-works. The apparatus may be made for from $1.50 to $2.00.

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If I were having another made I would have the inner and upper part of each cap grooved, so that the washer would extend beyond the edge of the tube and be well gripped when the cap is screwed down. However, the one that I have works splendidly.

At the top of page 82 in Pozzi you give some methods of finding the cervix in difficult cases when using the bivalve speculum. About two years ago I struck on a method which, I think, is simpler than the use of the sound or tenaculum. After introducing the speculum blades within the ostium vaginæ I open them about three-quarters of an inch. This brings into view a cleft at a point where the anterior and posterior vaginal walls separate. I then push the speculum slowly onward, keeping the cleft always in the clear space between the ends of the blades. In this way the cervix is sure to come into view. In this way you use the cleft between the anterior and posterior walls as a guide, instead of the sound, so that the idea is really about the same as yours.

No doubt, doctor, you think this a very funny letter. However, I have come to the conclusion that the general practitioner often comes across little points which it would not be worth his while to publish, but which might be of interest to the profession. I have also come to the conclusion that these little points might be worked in with something else by a person, like yourself, engaged in the literary work of the profession. Accordingly I donate this little batch of observations to you, assuring you that you are free to use them without reference to their source, if you ever find it convenient to do so

In the December number of the Canadian *Practitioner* I had a short and very incomplete article on the relation of chronic endometritis to early rupture of the membranes in labor. After writing the article I met with two cases which gave a history which would have been very important in connection with that subject. I really think that is a subject which you might be able to make some good observations on.

Wishing you the compliments of the season, I remain, yours sincerely,

MORLEY CURRIE.

JANUARY 8, 1898.

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TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of December 16, 1897.

J. M. BALDY, M.D., *in the Chair.*

DR. ROBERT G. LE CONTE reported

A CASE OF EARLY RUPTURE OF A TUBAL PREGNANCY; CELIOTOMY; RECOVERY.

C. B., æt. 35, a native of Hungary, was admitted to the Pennsylvania Hospital August 26, 1897. Her history, meagre owing to her not understanding English, is as follows: Married seventeen years. Had six children and three miscarriages. The last child, three years ago, was followed by some retained secundines, for which she was curetted. Five years ago she had an attack of peritonitis, cause unknown, and was in bed three months. Three months later a second attack developed, when she was moved to the general hospital at Pesth, where she remained nine months. No operation was performed. She has lived in this country about six months. Her last menses appeared on July 17, thirty-eight days before admission; the flow was scanty. Forty-eight hours previous to admission she was suddenly seized with severe cramps in lower part of abdomen, some vomiting, and progressive weakness and blanching of the skin.

On admission the patient looked exsanguinated. The skin was cool, moist, and very blanched. Pulse very feeble and rapid, temperature 99°. The abdomen was universally tender, but more markedly in the right iliac fossa. Slight rigidity of the muscles, but no distension. Vaginal examination revealed a slightly enlarged uterus in the normal position, and a sense of fulness and distension through the whole of the pelvis. The right side of the pelvis was particularly tender. The ovaries were not recognized. The diagnosis was made of abdominal hemorrhage, and. on account of the exquisite tenderness over the right tube, the slightly enlarged uterus, the delayed menses, and the duration of the hemorrhage (forty-eight hours), it was modified to a probable rupture of a tubal pregnancy, and immediate operation advised.

The patient was etherized, the abdomen opened in the median line, and the peritoneum found filled with currant-jelly clots and sanguineous fluid. On removing these the right tube was seen to contain a sac the size of a small walnut, with a wide tear across it, and partially distended with clot; blood was slowly oozing from the rupture. This was ligatured with silk and removed. On the left side the tube was closed and distended with a large hematocele. This was also removed.

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The peritoneal cavity was now hastily flushed out with warm sterile salt solution (six or eight quarts being used), a glass drain inserted to the bottom of the pelvis, and the abdomen closed. During the operation the pulse became so weak it could not be counted One-tenth grain of strychnia was given hypodermatically, and the median basilic vein opened and two quarts of sterile salt solution injected. Her condition, when removed from the operating table, was distinctly better; pulse 114 and much improved in volume. The tube drained freely for seven or eight hours, then the quantity rapidly diminished, and in twenty-four hours it was removed. The patient made an uneventful recovery and left the hospital in four weeks.

The case is of interest only in the early rupture of the sac (five weeks—that is, if we date the conception from the last menstrual period) and as an illustration of the prompt benefit derived from intravenous injection of salt water.

DR. C. P. NOBLE.—In cases of ruptured extrauterine pregnancy I think we are all agreed that the best method of treatment is prompt resort to abdominal section with removal of the involved uterine appendage. In cases like the one under consideration, in which there has been a large amount of blood lost, it is especially important to operate rapidly and to make the operation as simple as possible. In the beginning of my work I am sure that several patients died because a too elaborate technique was followed; the toilet of the peritoneum was too exact. In such cases it is best to remove the involved appendage and the blood which comes out easily, but not to spend too much time in efforts to remove all the effused blood. The patients are too feeble to stand the shock of a long operation, which attempts do far more harm than any blood left behind. Recently I have omitted drainage in such cases and have left the abdomen full of salt solution. When the pulse is feeble, in addition to this salt solution can be injected under the breasts or into the veins. In such cases I have followed the example of Dr. Baer and applied a firm abdominal bandage.

The last case of extrauterine pregnancy which came under my notice was one which had ruptured presumably at the third week. When I saw her she was in a dying condition; she had been pulseless for some hours, and her mind was wandering from acute anemia. I considered her condition hopeless and did not operate. The conclusion not to operate was probably favored by the fact that I saw her in the night, when it would have been impossible to have operated for several hours. She died shortly after my visit. A postmortem was held the following day, and the minute size of the ovum corresponded with the history, and was probably a pregnancy of not more than three weeks. The woman had missed her period only two days when the rupture took place. The tube ruptured about one-half inch from the uterus. Curiously, I had been called the year before to a patient, who lived within a block of this one, who died before my arrival. In this case the coroner's physician made an autopsy and found that the tube had rup-

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tured in about the same location—that is, about half an inch from the uterus. My experience is that, when rupture takes place in the tube near the uterus, hemorrhage is more violent than after ruptures in the outer end of the tube.

DR. E. P. DAVIS.—Some months ago I saw a case of ruptured ectopic gestation which was interesting in many ways. The patient was a slender, frail woman, the wife of a physician, married ten years, and had never been pregnant. She had missed her menstruation six weeks, and there had been no symptom which called the attention of herself or her husband to her condition. The patient was in perfect health, and mounted her bicycle and rode as fast as possible a mile and a half to a train; on arriving at the station she was taken with severe pain in the abdomen, but rode back again, when she was scarcely able to get to her room and to her bed.

A diagnosis of ruptured ectopic gestation was made. Examination showed signs of early pregnancy; the pelvis, by vaginal examination, containing nothing abnormal. While preparations were in progress for section the patient steadily improved; pulse 104, temperature 99°. She went on fairly comfortably during the night, and then occurred a secondary collapse; section was made as soon as possible, the patient perishing from shock before the abdomen was really opened. When the abdomen was opened a rupture was found in the left tube with two points of rupture: First, a small aperture; over this blood had clotted and served as a plug. This accounted for the temporary improvement in the patient's condition. Then later on there had occurred a tear across the convex surface of the tumor, on its abdominal side, and blood had leaked into the abdomen slowly. It was remarked by those who saw the case that but a small amount of blood had been lost, so that the patient's death was caused by shock. There seemed to be no connection between the amount of blood extravasated or lost and the fatal condition. This is the only case of rupture from use of the bicycle with which I am familiar. The time from the initial symptoms to death of the patient was scarcely twenty hours.

DR. B. F. BAER.—I think I ought to relate an experience I had in this interesting subject. During the first six months of 1897 I saw two cases of death from extrauterine pregnancy, and a third case which died before I could get started toward the case, having received word death had taken place and it was not necessary to go. I was telegraphed in the night, in the first case, to go to a town some distance from here, and when I arrived the patient was dead and the family asked us to make an exploratory incision to ascertain the cause. She appeared to have died from hemorrhage. A rupture of the Fallopian tube was found low down in the pelvis, and appeared to be in the broad ligament. There was no question of death from violent hemorrhage in that case. The point which is of vast importance is the fact that the general practitioner cannot be too forcibly impressed with the urgency of metrorrhagia slight in character, and the importance of seeking for a diagnosis. In

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that case the woman had been bleeding a little from the uterus for a day or two, and consulted her physician, and the examination was put off until the next day, when he discovered that there was still hemorrhage and it was too late.

The other case occurred early in June, and in that case fatal hemorrhage had occurred before I reached the patient. Exploratory incision was made, but it was too late to save the patient. The slight metrorrhagia was looked upon as probably due to some trifling cause. Early looking after this case would probably have saved her life.

I congratulate Dr. Le Conte on the successful treatment of his case. I should not have used the drainage tube. I have never placed a drainage tube in a case of extrauterine pregnancy except one. That patient died; all of the rest recovered. Of course the patient would have died whether a drainage tube was placed or not. Remove the specimen; make as nice a toilet of peritoneum as possible without too much washing by constant irrigation, which never removes all the clots. It is just as well to close the abdominal cavity; the blood is sweet and is probably reabsorbed and feeds the patient.

DR. R. G. LE CONTE.—I agree with Dr. Noble that in extrauterine pregnancy speed in operating is one of the most important factors. I do not agree with him as far as drainage is concerned. I think where you are in a hurry and the washing more or less superficial, the patient is safer with the bloody fluid drained off than closed tightly in the peritoneum. I have seen a good many operators, after hysterectomies and ovariotomies where the adhesions are strong and where it is impossible to cover the denuded peritoneum after removal of the specimens, drain such cases simply and solely on account of the hemorrhage that is certain to take place. For this reason, in extrauterine pregnancy, if the collection of blood is not well washed out, I consider drainage is the proper thing. If you have time and the patient is in good condition to stand the proper toilet of the peritoneum, I would close without drainage.

DR. C. P. NOBLE read a paper upon

OPERATION FOR THE RESTORATION OF THE URETHRA AND FOR THE CLOSURE OF A VESICO-VAGINAL FISTULA INVOLVING THE NECK OF THE BLADDER.[1]

DR. BAER.—In connection with this case I would like to speak of a case of destruction of the urethra that I had eight or nine years ago, which has never been reported, in a little girl of 11 years. The destruction was caused by ulceration from a stone, and I do not think that the operation for the removal of it had anything to do with causation. Considerable ulceration continued, but in attempting to restore it there was still further destruction of the urethra, so that by the time she came under my care she had been for a year or two almost entirely without a urethra, and, of course, had no control over the

[1] See original article, p. 306.

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bladder at all. The patient was one of Dr. Watson's, of Lock Haven, and the operation was performed in 1889. I did not want to undertake it. It did not appear as though it would be possible to make a urethra. There was little redundancy of tissue. As much as could be loosened was dissected free and the urethra formed by some means, I don't know exactly how. I was able to suture some loose tissue I had dissected from the sides of the vagina opposite the urethra on either side, and finally suturing around a very small English catheter, intending to leave it for a little time. The child was violent when she came out of the anesthetic, and the catheter was left out. We depended on catheterization every hour or two, and got pretty good union and some retentive power. For a long time we regarded the operation as a failure, but as she got older she had more retentive power, and it has not been necessary to repeat the operation. The last I heard from her she was entirely satisfied. In regard to Dr. Noble's case, it would be interesting to learn how she is six months from now. There may be a good deal of contraction of the canal later, and it is to be hoped there will be, but there may be more than is desired.

DR. E. P. DAVIS.—I desire to report in this connection a case of fistula at the neck of the bladder following forceps extraction of a child in a contracted pelvis. Within thirty-six hours the nurse reported the urine to be bloody, and this discharge of blood or admixture evidently came through a mingling of the lochia with the urine high up in the vagina. The patient made a steady convalescence, but there was a little leakage into the vagina later. She was then discharged into the out-patient department of the Jefferson Hospital, where milk was injected into the bladder and seen to trickle into the vagina very high up. She passed from observation, and subsequently returned in excellent condition, spontaneous closure having occurred. In this instance the fistula must have been behind the pubes, where pressure would be greatest during such an extraction.

DR. J. M. BALDY.—The case is of more than particular interest to me, because she passed through my hands and I failed to accomplish what Dr. Noble has. The report of the history of the case is perfectly in accord with what I had at the time she first came into my hands. The physician in charge originally is a quack. I was so informed by the Reading physicians of the very best standing. Of course what was done was to snip out a piece of the bladder. At the time she came into my hands the urethral floor and one-third of the bladder floor was gone The whole urethral floor was gone with the exception of one little mucous membrane tip at the very outlet just at the meatus, thin as a wafer—merely mucous membrane, nothing else. The tissue on one side up to the mouth of the urethra was perforated by a dozen little holes. Apparently a dozen stitches had gone through and each stitch left a little opening. When I completed the first operation two of these little openings permitted passage of probe into urethra. They were both closed afterward by a separate operation. The whole of the urethra

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closed and a portion of the bladder closed. After the operation I left the patient feeling very comfortable, thinking it would surely close, but I heard from patient two or three months later that it had only partially succeeded. I then believed catheterization spoiled the result. A catheter was not kept in the bladder. The subsequent attempts all failed at the same point, at the neck of the bladder. I protested before the last operation against doing it, and told them they ought to go home and allow an interval of several months to elapse before anything further be done. I believe the success Dr. Noble had, as he believes, was due to the size of his catheter. The second operation I did exactly the same as the first time and left in the catheter. I had the same trouble as Dr. Noble. The catheter became blocked with urinary salts and had to be washed out each time. This operation was done in precisely the same way as Dr. Noble did his: the mucous membrane was dissected out entirely and brought together by a separate row of catgut suture, and instead of using silver wire I used silkworm gut to close the edges of the fistula. An ordinary size female rubber catheter was introduced into the bladder and allowed to remain, and I believe it would inevitably have closed if I had used a small catheter as Dr. Noble did. Free incisions were made on both sides, brought together in their long axis. I made incisions an inch deep along the pubic bones. The whole urethra and the anterior neck of bladder hung as a bag without tension on these sutures. That was the one difficult point I had after the first operation, to get stitches in that would hold.

There was a full inch of urethra re-formed, but it all disappeared after the third and last operation. I congratulate Dr. Noble in that he had such success with the case, and I am only sorry that I did not have the same success. His success demonstrates to me the importance of the size of catheter and the mistake of not taking the scissors and cutting down and doing the thing as a whole at the second operation if the first one be only partially successful, in cases of fistula at the neck of the bladder. That is the only case of urethro-vesico-vaginal fistula that I have ever seen.

DR. C. P. NOBLE.—Like Dr. Baldy, this is the only case of the kind which has come under my observation. I have not had time to read the literature thoroughly, but, looking through a number of text books on diseases of women, I find no cases reported except by Emmet. The suggestion to use a very tiny catheter I derived from the article by Olshausen, in which he reports three operations. I confess that when Dr. Baldy had not succeeded in restoring this urethra I felt somewhat dubious about the result. The difficulty was the lack of tissue, and I made up my mind that if union was not obtained in the operation I would bring a flap down from the anterior wall of the vagina, out of which to make a urethra. Fortunately this was unnecessary.

I have had a number of cases of vesico-vaginal fistulæ just about the neck of the bladder. One of them was very difficult

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to close, because an extensive cicatrix had drawn the fistula up and behind the pubic bone. The other two cases were easy to close; in one, by altering the denudation and the direction in which the sutures had been introduced, I succeeded after six failures in other hands. The third case was a very simple one, but had a rather curious etiology. The woman had been shot by her husband, the bullet entering the pelvis from behind, perforating the rectum and vagina, and lodging in the vesico-vaginal septum. I saw her some years after the injury, but the fistula still remained. Emmet states that, as a result of his experience, he is but little inclined to attempt to cure such cases, as, after working for years to restore them, an ultimate failure was the result because of lack of proper after-treatment. In the case which he mentions a cystitis developed after the patient returned home, and from lack of proper treatment this progressed and resulted in such tenesmus of the bladder that the line of union gave way. In a discussion on the subject I once heard him say that he did not intend to attempt any further operations of the kind. If this patient does not have perfect control of her bladder—and because of the injury to the sphincter vesicæ this is not likely—I believe that the use of the globe pessary will be of service by making tension on the urethra and thus lessening its calibre.

Dr. H. D. Beyea read a paper upon

THE ENUCLEATION OF A PAROVARIAN CYST WITHOUT REMOVAL OF ITS TUBE OR OVARY.[1]

Dr. C. P. Noble.—I am very glad that Dr. Beyea brought this subject up. I think it is well worthy of discussion. The matter was first suggested to my mind a number of years ago when we first began to hear of conservative surgery, by the report of a case by Dr. Thomas. Dr. Thomas reported a case as belonging to conservative surgery when he removed the ovary and tubes along with one of these tumors, and left the suspicious tube on the other side, and he dwelt at length on the feelings of the patient in having this tube sacrificed. I remember on reading the case I thought it would have been much more conservative to remove the tumor and leave the ovary and tube. I have removed several of these tumors, leaving the ovary and tube intact. I remember, when Kelly's report came out, feeling that it should be brought before the profession, because undoubtedly the custom is too common of taking the ovary with the parovarian cyst, although it is perfectly feasible and simple to take out the tumor and leave the ovary and tube.

Dr. B. F. Baer.—The subject is one of considerable interest. I think if you will recall ten years ago (1887), Mr. President, you assisted me, and Dr. Noble was present, at an operation at 2008 Chestnut street in a very interesting case where dissection seemed to be almost impossible because of the hemor-

[1] See original article, p. 310.

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rhage that we met with at once on the dissection. The woman was 44 years of age, single, and had the tumor nine years. It had been tapped nine times—tapped almost once a year since it had been discovered; three gallons of perfectly clear spring-water-like fluid having been removed at the first tapping, according to her physician. Afterward the fluid was straw-colored. By the time she came into my hands she had a good many adhesions as the result. There was a large cicatrix on abdomen, and at that point considerable sloughing following one of these tappings. We found a fimbriated extremity of the Fallopian tube tightly adherent to that point. There were many intestinal adhesions on the upper surface of the tumor. I had known long ago that these tumors could be very readily shelled out, and that was demonstrated very readily in many of Dr. Goodell's specimens at the university; and in this case, as soon as we cut through the peritoneal surface, we came upon a beautiful white membrane which seemed almost to invite enucleation, and, if you will remember the case, I in a very few minutes shelled it out from the bottom of the pelvis after we had tapped it and removed about three gallons of straw-colored fluid. A trifling amount of blood was lost. I have enucleated quite a number of these cysts. It was known long ago that when you removed these broad-ligament cysts the loose tumor could be easily shelled out. I read over yesterday my report of the case. It is in THE AMERICAN JOURNAL OF OBSTETRICS for 1888. The question of saving the ovary is of great interest and very valuable, and we ought to be obliged to Dr. Beyea for the beautiful report he has given us. Where the appendages can be saved they always should be.

DR. R. C. NORRIS.—I have had some experience with enucleation of broad-ligament cysts. I remember one case I had about a year ago in which the patient had several attacks of pelvic inflammation. The tumor was firmly adherent, and it was enucleated with a very great deal of difficulty. For a distance of three inches I had to make a formal dissection of the ureter from the wall of the cyst. In that case both ovaries and tubes were diseased and removed. The point Dr. Baer brought out as to the ease with which most broad-ligament cysts can be shelled out is important and emphasizes the great desirability of saving tubes and ovaries when not seriously diseased.

DR. G. E. SHOEMAKER.—In cases where there has been a peritonitis about small cysts, where the broad ligament has been rolled up, as it were, and the cyst is very low down, it is sometimes a very difficult matter indeed to remove them. In the removal of a tumor of this character, in which the case had had a great deal of peritonitis and the cyst had extremely firm attachments to the sigmoid flexure of the colon, I on one occasion so thinned the wall of the bowel as to necessitate stitching, and subsequently a fecal fistula formed, the only one which I ever had in the course of my operative experience. I mention that case as showing the difficulty which one may encounter in attempting to either enucleate or remove a tumor, apparently

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simple, which has undergone repeated attacks of inflammation. The wall then is not, of course, separable into layers.

DR. H. D. BEYEA.—The cases referred to by Dr. Baer and Dr. Noble were, in my opinion, the character of tumor which is often described as a broad-ligament or intraligamentary cyst. In both instances the cyst was enucleated from its bed, as this was the only possible method of treatment, and the tube and ovary were left, not as a conservative method of treatment, but because they were not found, could not be removed, or the tube and ovary or its anatomical relations were not primarily disturbed by the cystic tumor. Broad-ligament or intraligamentary cysts are thought to have their origin in Gärtner's duct where it persists as a fetal structure between the layers of the broad ligament opposite the lower uterine segment. They may be paroöphoronic cysts or are inflammatory in origin. I think every operator of any experience has enucleated these broad-ligament cysts by the method described by Dr. Baer and Dr. Noble. The class of case to which I refer is the typical parovarian cyst, growing between the layers of the mesosalpinx or mesovarium, having for its pedicle the tube, ovarian ligament, and upper portion of the broad ligament, that portion of the broad ligament which is ligated in doing the ordinary oöphorectomy. This is the cyst with which every operator is very familiar and which he always removes by the usual method of oöphorectomy.

DR. J. M. BALDY reported

A CASE OF BOWEL OBSTRUCTION FOLLOWING AN ABDOMINAL SECTION.[1]

DR. E P. DAVIS.—One point in the clinical history which Dr. Baldy narrated was the epigastric pain. I recall a case of obstruction of the jejunum and ileum, caused by infection by the bacillus coli communis, in which the patient had many of the symptoms which Dr. Baldy's patient presented. She passed flatus frequently. The intestine was well washed out by using the intestinal tube. She also vomited matter which was very suspicious of fecal matter. Her stomach was washed out; the tongue remained perfectly clean. She again vomited fecal matter and had distinct epigastric pain. At autopsy the obstruction was at the small intestine; did not go as low as the large intestine, but distinctly comprised a portion of the small intestine. It is possible, I think, that epigastric pain may be found a symptom of obstruction in the region of the small intestine.

DR. G. E. SHOEMAKER.—I would say that in obstruction from other causes in the lower abdomen, as in hernia or in appendicitis, the pain is often referred to a point above the umbilicus as well as to the umbilicus itself. In appendicitis the pain is not infrequently referred to the opposite side of the

[1] See original article, p. 314.

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body, so that pain would not necessarily indicate the site of obstruction.

DR. C. P. NOBLE reported

A CASE OF PUERPERAL ABSCESS TREATED BY DRAINAGE, WITH SUBSEQUENT RESULTS.

I wish to report a case of puerperal abscess treated by drainage, together with the subsequent history. The case is of special interest at this time, when the results of conservative operation are being so carefully watched.

Mrs. B., age 22, has had two children and one miscarriage. The last labor was January 3, 1897, when she was delivered of a dead baby. She did not have a good "getting up," but gave no history of an acute septic infection. She complained of pain in the pelvis and some bleeding until April 20, when she presented herself at the dispensary of the Kensington Hospital for Women. She was admitted to the hospital on May 4, at which time she had a temperature of 101° F., and on examination a mass was found to the left of the uterus, which I believed to be an extratubal abscess. A vaginal incision was made, the abscess opened, drained, and packed with gauze. Recovery promptly ensued, and the patient returned home. She was instructed to report to the dispensary for tampon treatment, and received this regularly until her readmission to the hospital on November 19. During this time her general health improved very much, and, except when she exerted herself, she felt comfortable. If she was obliged to do hard work, however, she suffered from pelvic pain. On her readmission to the hospital it was evident that there were some adhesions holding the uterus in retroversion. The uterus was curetted, a laceration of the cervix sewed up, and then the abdomen was opened. The interesting point, of course, is as to the condition of the uterine appendages in the case. It will be recalled that the abscess was to the left of the uterus. Both appendages were found lightly adherent, but the Fallopian tubes were patulous and, aside from the adhesions, in normal condition. The left tube was more nearly normal than the right. This fact indicates the correctness of the original diagnosis, that the pus was extratubal. The steps of the abdominal operation consisted in freeing the adhesions and in shortening the round ligaments according to the technique of Mann. The patient made a good recovery.

The case is an admirable illustration of the value of drainage for puerperal abscess. It is only one of a number that I have been able to cure by drainage with the preservation of the sexual organs intact. I hope soon to collect all my cases of puerperal abscess treated by drainage, and to give their subsequent histories, which will clearly show the value of the drainage operation in this class of cases.

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Meeting of January 20, 1898.

J. M. BALDY, M.D., *in the Chair.*

DR. G. M. BOYD read a paper upon

TWO SUCCESSFUL CESAREAN SECTIONS.[1]

DR. C. P. NOBLE.—The first case I remember very well, and I think it is a good illustration of the fact that the classical Cesarean section is preferable to Porro operation where there is no tumor. The proper operation to do when we have to do the section, unless there exists some special reason to the contrary, is the classical and not the Porro operation. This is the second case which has occurred in my knowledge of a woman having been delivered a second time and both the women made good recoveries; and it is so well known that the results of a third Cesarean section are good that I fail myself to understand why men take the position that we should elect to do a Porro operation, the patient herself being indifferent about the matter. I would myself go further than Dr. Boyd and would discourage patients from having a Porro operation done unless there was some good reason, such as a myoma or cancer or infected uterus. I feel that the Cesarean operation, done as an elective operation before the woman has gone into labor, is a very simple one, and so simple that this is one of the grounds for believing that the latter is to be preferred to the Porro.

DR. B. C. HIRST.—I arrived too late, unfortunately, to hear the paper, but I must differ with Dr. Noble I believe the Porro operation is the operation to be selected in the majority of cases. I am not driven to take this view by any special prejudice in favor of hysterectomy, but by experience. I have had a large number of Cesarean sections and have carefully studied the literature of the subject, and I am forced to believe it is better, as a rule, to prevent these women becoming pregnant again and being delivered in the same way. Dr. Noble fails to take account of it in his remarks, but you will find a startling mortality among these women in subsequent labors. If they fall into good hands there is no reason that they should perish. It is obvious, however, that a woman in the lower class of life cannot always command skilled medical aid. I feel, moreover, that we do not do our duty to the patient if we subject her to a repetition of such a serious operation even in the best hands. I find that this is the view taken by the family, her physician, and the patient herself if she is consulted. Indeed, her friends usually ask, unprompted, that measures be taken to prevent a possibility of future pregnancies. In one of the cases that Dr. Noble quotes the woman would have been vastly better off if the uterus had been removed at the first operation. As I understand it, the second labor was ushered in by a rupture of the womb and a discharge of liquor amnii through the abdominal

[1] See original article, p. 321.

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scar. When she fell in labor she discharged the liquor amnii through a fistula persisting from the first Cesarean section, and the child was delivered practically through a rupture of the uterus. I am at present engaged in a search through literature to determine, if possible, how many women subjected to the Cesarean section have the operation repeated upon them and how many die in subsequent labors. It will be impossible to determine this point accurately, but I think it will appear that in common humanity and in justice to the patient she should not be subjected to the great dangers of repeated labors if her pelvic canal is insuperably obstructed. I feel convinced that a large number of such women lose their lives in subsequent labors by not having the most skilful medical attention. This fact was forced on my attention a few months ago by a case sent me from New Jersey for delivery by Cesarean section. The woman had been delivered three times before with the utmost difficulty, and always of a dead child by a mutilating operation. Her last labor, her physician told me, was more difficult than any previous one. I received the woman in the hospital when she was seven and a half months pregnant, and found that she had a marked rachitic pelvis with a conjugate of seven and a half centimetres. She had never had a child weighing less than twelve pounds, and at that time it was impossible to push the head into the pelvis. I accordingly recommended section in her case, intending to remove her womb to prevent a repetition of her dangerous experiences. The woman became homesick and left the hospital after a few days' residence there, telling me she would return for the operation. She was evidently frightened and failed to return. She fell in labor at home, and her physician, being out of town, on his return thirty-six hours later found his patient in hard labor, with the os well dilated and the head apparently engaged in the superior strait. He thought that the time had gone by to transfer her to the city, and he determined to await events. Twelve hours later the uterus ruptured, the child was expelled into the abdominal cavity, and both mother and child died. I think this is the fate often in store for those on whom the conservative, old-fashioned Cesarean section is performed. To my mind the only cases in which the conservative Cesarean section is indicated are those in which one can remove a tumor at the time of operation by myomectomy, or by ablation as in the case of a dermoid, and can leave the pelvic canal unobstructed for future deliveries. Even in these cases, as a matter of fact, we do not often have an opportunity of leaving the uterus in the woman's body. In my own experience, tumors, dermoid cysts, etc., are usually overlooked until the patient has been in labor several days, there is usually a tremendous edema of the pelvic structures, and so much bruising of the uterus that it would be the height of imprudence to leave it in the woman's body to slough and give rise to fatal infection. Three or four of my Cesarean sections have been performed for this indication, and I have been obliged in each case to extirpate the

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womb, always, so far, with success. It is not at all uncommon to read records of ligation of the tubes in Cesarean sections so as to prevent the woman becoming pregnant again. If the operator goes that far it seems to me he does much more wisely to remove the uterus. There is no danger, after hysterectomy, of infection of the endometrium, no possibility of uterine hemorrhage, no chance of leakage into the peritoneal cavity, no likelihood of adhesions between the uterine and abdominal walls, no possibility of fistula, and, what is best to my mind, no opportunity for recurrent pregnancies and labors with the dangers that attend them.

DR. C. P. NOBLE.—I would simply like to state the conditions present in the case to which Dr. Hirst referred. I did not do the first operation upon the patient, but it was the second woman who ever recovered from a Cesarean section in Philadelphia, so that from that standpoint she was to be congratulated upon not having died. It was a woman who had been long in labor and had a slough of the cervix at the time Dr. Kelly was called in to see her; the cervix sloughed and she had a peritonitis, and as a result of the conditions present at this operation the fistula which Dr. Hirst speaks of resulted. Whether it would have been wise to have done hysterectomy we do not know. The probabilities are that the woman, in the desperate condition in which she was, would not have survived if total hysterectomy had been done. As the cervix was sloughing, the ordinary dropped-stump operation would not have been sufficient to have saved her. I think the practical outcome of the case was a very good argument in favor of the method adopted. The case was operated on ten years ago when the modern Porro operation was unknown.

DR B. C. HIRST.—A word in regard to sloughing of the cervix contraindicating the Porro operation. That is not the case. I have had half a dozen Cesarean sections in which the cervix sloughed after the Porro operation was performed. It did not complicate the recovery in the slightest degree. Some of these cases were in the older times when I used the serre-neud. In one the whole cervix sloughed away, and in another one the whole labium. I have had eight or nine cases, I can recall at this moment, operated on by modern method of dropping the stump. The material that necrosed comes away easily; there is good drainage by the cervical canal; the woman at no time displays more dangerous symptoms than a slight elevation of temperature and a moderate rapidity of pulse. Therefore this possibility is no contraindication to the Porro operation.

DR. G. M. BOYD.—It seems to me, if the uterus is in a healthy condition, that the classical operation is the least grave. If we simply desire to remove the uterus to prevent future pregnancies, can we not attain this end by simply tying or removing the Fallopian tubes? It is a less grave procedure. The patient still has her uterus, still possesses her ovaries, and still will not run the risk of future pregnancies.

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DR. JOHN B. SHOBER read a paper entitled

DOUBLE CELIOTOMY FOR APPENDICITIS AND RETROVERSION OF THE UTERUS; INTESTINAL PARESIS; RECOVERY.[1]

DR. C. P. NOBLE.—We have all of us seen intestinal paresis after operation, and there is no doubt it is a serious condition when present. I think the most striking case of intestinal paresis was a case I saw in consultation with Dr. Boyd some years ago. That was a case after labor. My recollection is that it was a patient who had twins; after labor she had an enormous distension of the abdomen and it was impossible to get her bowels moved, and apparently she had an obstruction of the bowels. In that case operation was advised and done, and absolutely nothing was found in the peritoneal cavity to account for peritoneal distension. In other words, it was a clear case of intestinal paresis that resulted fatally. In my own abdominal work I cannot say that I have seen more than one case in which I felt myself that death was due to obstruction of bowels due to paresis. I had one case in which I think death did result from this cause. In most of the cases which I meet with myself where there is paresis of the bowel, I believe the difficulty is a septic peritonitis. I do not mean that I think this is invariably the case, but it has been my own experience. The first case alluded to, however, is a clear demonstration to me that you can have a fatal case due simply and purely to paresis. The cases that have had intestinal paresis in my hands have ended favorably and have not died. With reference to the cause of paresis, in the first place the condition of the patient before operation has a good deal to do with it. Patients who have an atonic intestinal muscle before operation are predisposed to paresis. I have had a number of cases of old fibroids where there was pressure upon the bowel in run-down patients; these have given a great deal of trouble to have bowels moved after operation. The Germans believe a great deal in paresis of bowels, and Olshausen has a favorite theory that a cause of a great many cases of septic peritonitis is paresis of the bowels to start with, putrefaction of intestinal contents, infection of the peritoneum through the bowel as a result of over-distension. I have had some cases which I thought fell under his classification; but that is a pathological question which I do not feel is yet settled. The methods which I have adopted to overcome paresis of the bowels are those mentioned by Dr. Shober. Undoubtedly our sheet-anchor must be calomel, irrigation of the colon, and strychnia.

DR. JOHN B. DEAVER.—I would add one point personally with regard to intestinal paresis such as Dr. Shober has described. I have obtained equally good results from packing the abdomen with ice, which seems to be stimulant to the bowel.

DR. G. M. BOYD.—I recall now the case that Dr. Noble

[1] See original article, p. 299.

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mentioned. If I remember rightly the intestinal paresis followed a twin pregnancy, the intestine became more and more inflated, and so great was the distension that the transverse and descending colon stood out as markedly as if it were well outlined on the abdominal wall. If I remember rightly she also had no elevation of temperature to explain the condition. I had Dr. Hirst also see the case with me in consultation, and an exploratory incision and section was advised. The bowel was examined carefully and there was no evidence of peritonitis, nor could we find any evidence of obstruction to account for the condition.

DR. JOHN C. DA COSTA.—I would like to ask Dr. Shober and Dr. Noble what doses of calomel they gave.

DR. SHOBER.—I am in the habit of giving one grain every hour for four or five hours, followed by salts.

DR. C. P. NOBLE.—I usually give one-tenth of a grain at half-hour intervals, and in some cases I have given five grains. If I have given one-tenth of a grain without result, I give five-grain doses.

DR. JOHN C. DA COSTA.—Like everybody else, I have had cases of paresis following operation. I have tried the one-tenth of a grain and the one-half grain of calomel and do not think it does any good. Calomel in these cases must be given in doses to amount to something. I have now two cases just recovering; two consecutive operations—one of them is one of the worst I have had in five years—both followed by paresis; in neither case was temperature high, but in both pulse very quick and weak, and I gave these cases five-grain doses of calomel followed in four hours by five grains more. In two hours after the second dose there was in each case a good, free, full movement of the bowels. One case was in such a condition that she was given hypodermatically one-twentieth of a grain of strychnia every half-hour; that is a pretty good dose, but the woman would have died without it. In these cases there is no dose to the medicine; the dose we want is that sufficient to produce physiological action of the drug. I do not think that small doses in these cases do good. In cases of paresis of bowels you will find that salts which in other cases act very promptly do no good. You want something which will produce an outflow of bile from the liver, a dose of something to irritate the bowel. Both these cases are getting well.

DR. JOHN B. SHOBER.—I have very little to add. I may say that I believe the gas lies in the small intestine; that it is easy to get rid of when it is in the large intestine, as I tried to point out in my paper. There must be some reason why the gas does not escape into the large bowel, and I had hoped we would have some views expressed as to the cause of the gas lying in the small gut.

As to treatment, it is entirely symptomatic. The whole subject, to me, is a very unsatisfactory one. The cases cause great anxiety. The fact that we do not know whether we may at any time expect sepsis to develop is the chief point to consider.

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DR. J. M. BALDY reported a

CASE OF CONGENITAL MALFORMATION OF GENITALIA.

This case, a patient of Dr. Shoemaker, of Phœnixville, Pa., is an illustration of an exceedingly rare class of cases in literature and is exceedingly rare in my own practice. The case is one of congenital absence of genital organs. The patient was 24 or 25 years old, perfectly rounded out, and as womanly-looking a girl as you run across. The mammæ were fully developed, the pubic hairs were perfectly developed and luxuriant. The vulva was normal. You would hardly say the labia minora were infantile; at the same time you would say that they were a little small for a virgin of that age. The hymen was apparently perfectly intact; I could not introduce a finger. There was a complete absence of vagina. There was complete absence of ovaries, as far as I could make out, also of Fallopian tubes and of uterus. Of course in the examination of the patient without ether, or even without a post-mortem examination, there may be a question enter one's mind as to what exists and what does not exist. There are cases on record in which, on postmortem, ovaries have been found, remnants or parts of tissue which microscopically have represented Fallopian tubes have been found, very small, mostly non-patulous. With the finger in rectum and the sound in the bladder there was no question whatever that there was a total absence of everything in the way of vagina. The uterus was absent, except perhaps at its site tissue of the thickness of two or three sheets of paper. As to Fallopian tubes, as far as it is possible to say, they did exist. Burrage has recorded congenital absence of uterus in 360 cases from earliest times up to the present—roughly speaking, about 300 cases in the last century. Of this number there were 35 autopsies, 24 of which were on the bodies of adults, 2 on girls 10 and 12 years old respectively, the rest being on monstrosities and fetuses with absence of other organs making prolonged life impossible. In all of the autopsies on the bodies of adults and girls there were noted in every case rudimentary tissues representing the uterus, generally one or two little knobs of tissue the size of hazelnuts or a thin band between the rectum and bladder. The ovaries were found to be present in all cases but 6; the tubes were present in all cases except 6, though often without any canal.

The derivation of the hymen is still in dispute. It was formerly held to be formed from the lower end of the vagina. but the many cases of absence of the uterus and vagina in which a well-formed hymen exists would seem to disprove this view. So, also, the absence of smooth muscular fibres in the hymen would tend to show its anatomic dissimilarity to the vagina.

The case under consideration seems to uphold the theory that the hymen was distinct from the vagina. It existed in all its perfection, with no trace of vagina.

DR. BALDY also made

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REMARKS ON FIBROID TUMOR; SPECIMEN.

This specimen was removed to-day. It is a beautiful illustration of that class of cases known as submucous fibroid of the uterus. Could a diagnosis have been made it would have been possible to remove it through the cervix. You will see I have peeled it out of its bed and it is hanging only by a small attachment. It is about as large as a baseball.

The greatest difficulty in treating a case of this kind by removal through the cervix is in making the diagnosis. Mostly it cannot be made, and generally is not. Even if made I would hesitate to submit a woman to the amount of traumatism and force necessary for its removal, especially in view of her age and condition. I do not believe in fancy operations on women near the menopause. I only present the specimen because it is an unusually fine specimen of its kind—not to encourage morcellation, in which operation I have little faith as a rule.

DR. B. C. HIRST.—I have seen one case of absence of genitalia and I expect to see another one shortly. The case I examined was a young girl, intensely neurotic, who had been under prolonged treatment for neurasthenia and hysteria, and who had been finally told by a lady physician, after a vaginal examination, that all her troubles were due to womb disease and could be cured by local treatment of that organ. This statement aroused a little hope in the minds of the family, who rather reproached her attending neurologist for not having discovered the cause of the neurasthenia. He rather doubted the statement and asked permission for me to examine the young girl. I made a careful examination and found she had no uterus at all and only a rudiment of a vagina. There was a complete atresia of the vagina after one inserted the finger an inch. She had never menstruated. I could not find any trace at all of a womb. I could not even find a rudiment of it.

A curious fact in the history of this girl was that she had two aunts who apparently had the same malformation. The family history on the mother's side was that there were three daughters, the mother and two sisters. The mother had married and had two children; the mother's two sisters had never menstruated, had married, but had never borne children.

I have recently been requested to see a young woman with entire absence of the generative organs, with the idea of making an artificial vagina. I hope to report the result of this operation to the Society at an early date.

DR. JOHN B. SHOBER.—I have at present in the Howard Hospital a case of submucous fibroid of the uterus. The woman gave birth to a child four months ago, and since that time there has been constant bloody discharge. It was supposed, when she was sent into the hospital, that it was a case of retained secundines. I found when she arrived that she had a history of fairly good health since the labor, there having been no rise of temperature; but there has been constant metrorrhagia. Upon examination under ether, with the idea of

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removing the contents of uterus, I discovered that I was dealing with a case of submucous fibroid about the size of a lemon. It was some time before I discovered that I was dealing with a submucous fibroid. Upon introducing the finger into the cervix, which I was obliged to dilate, the right side of the cervix was torn, and I found that this tumor was held by a broad base to the left lateral wall of the uterus and it was impossible to enucleate it. I split the capsule with my finger for three inches and attempted to remove it by morcellation. I stopped after further futile efforts, with the idea of etherizing her again in a few days and attempting by morcellation to remove the growth. It is interesting to note that this fibroid tumor must have existed during her pregnancy.

DR. B. C. HIRST presented a specimen and said: This uterus shows the uselessness of expecting too much from myomectomy. Most of the European journals have been full of reports of myomectomy, claiming that this operation would take the place of hysterectomy; that almost all fibroid tumors could be removed, leaving the sexual organs behind. Such a case as this shows that it is often impossible. This is a multilobular tumor involving the whole womb. If one had tried to take out the tumors there would have been nothing left of the womb. This specimen is rather interesting also on account of the very large hydrosalpinx attached to the womb. On the other side there was a pus tube with dense adhesions.

DR. C. P. NOBLE.—I have removed a number of submucous fibroids by enucleation and morcellation, and every case in which I have operated made a good recovery and they have all done well since. I agree with Dr. Baldy that the question is purely one of diagnosis, and I have a number of times done hysterectomy, and after I got the specimen out felt very sorry I had not attempted myomectomy per vaginam. In a number of cases I have split the uterus; then, using bullet forceps and working with the fingers, I have been able to take these tumors out of the fundus. All made good recoveries. The operations were completed by stitching up the incisions with catgut.

In regard to hemorrhage, I used to feel that we might get serious hemorrhage, but I have never had to ligate the uterine arteries. I may say in one case, in taking a small fibroid out of the cervix, I wounded one of the vessels of the broad ligament. Being unable to control the bleeding, I was obliged to perform hysterectomy in order to find the vessel. It was a trifling fibroid, no bigger than a hazelnut. From the standpoint of the percentage of cases in which one can do myomectomy, and as to the results of myomectomy, about one-fifth of the cases I have operated on for fibroids have been myomectomies, and I feel that is too low a percentage. I am quite sure in the future I can do more than twenty per cent of myomectomies. The cases that had myomectomies have none of them returned to me as the result of bad health as the sequel of growing tumors; but as we all know the multiple nature of fibroids, it is only reasonable to suppose that a certain

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percentage will develop other tumors. Quite a number of these cases have had children and done very well. I have never lost a patient from myomectomy.

DR. J. M. BALDY.—As far as myomectomy is concerned, I am free to admit that I do not come across many tumors in which I feel I would be justified in doing it. Most of my cases are like those of Dr. Hirst. For instance, to-day I did an operation for ovarian cyst. and I found that there were at least three or four fibroid nodules in the uterus—one as large as a pigeon's egg, a number of smaller ones. It may not be well to remove the uterus in young child-bearing women, but in this case—multiple tumors, a woman 38 years old, with no prospects of marriage, one particularly anxious that there should be no necessity for future operations—I felt justified in removing the uterus. I consulted the physician and asked what her wishes would be in the matter, and he said that she only had one wish, and that was never to undergo another operation; and I do not feel I would have been justified in leaving this organ with the nucleus of an unknown number of tumors for possible future trouble; any one or every one of these nodules might have turned up as a large growth later. That is one of the questions that face us in considering myomectomy. The age of our patient, her desires in the matter, as well as her future, must guide us in regard to our position in these matters and the responsibility we take. Taking these things together with the tumors in which myomectomy cannot be done or involves too great danger to the patient, I do not see many fibroid uteri on which I care to perform myomectomy.

TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY.

Meeting of September 9, 1897.

The President, C. L. BONIFIELD, M.D., *in the Chair.*

DR. SCHOOLFIELD reported

TWO CASES OF ECTOPIC PREGNANCY TWICE IN THE SAME PATIENT.[1]

DR. PALMER.—I think we should ignore the term "extra-uterine pregnancy," for it is not applicable to all. A much more appropriate term would be "ectopic gestation," which the doctor has employed. The term "ectopic gestation" indicates simply misplaced gestation. I am not one of those who are disposed to accept the statement, made by Lawson Tait and others, that all forms of ectopic gestation are tubal, even

[1] See original article, p. 318.

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primarily. I do not see why we cannot have some cases that may be ovarian or tubo-ovarian, and some that may be abdominal, at the start. I have operated upon quite a number of cases of ectopic gestation, running from two to seventeen months. Some were clearly tubal, and in one case it was clearly interstitial. In another case it was tubo-ovarian and in another case it was abdominal. In that case the adventitious sac was formed about the intestines; it did not embrace the tube or ovary. The child died at the usual time, at the end of normal gestation.

Many of these cases of ectopic gestation are dependent upon a morbid condition of the tubes which has a specific origin. In other words, they are gonorrheal. Is it prudent to leave the opposite ovary and tube if there is gonorrheal salpingitis? We know that if there is a gonorrheal disease of the appendages of one side, of quantity sufficient and severity sufficient to justify a laparatomy, almost invariably we will find some infection on the other side which of course is gonorrheal, and we will subsequently have a recurrence of the disease on the other side and a second laparatomy will be necessary. I do not know how many cases I have read and heard of and seen in which a second laparatomy was needed for a serious infection of the opposite ovary and tube when the original trouble was gonorrheal.

DR. RUFUS B. HALL.—Before I accept the first case reported as a second tubal pregnancy I would want the positive proof by an autopsy or laparatomy. There is presumptive evidence that it was a case of ectopic gestation, but it was not proven by any means. It is well known that nearly all of these cases have diseased appendages before they have an ectopic pregnancy. Then, with this patient known to have pelvic disease, there are many other ailments which could be mistaken for, and from the clinical history be confounded with, ectopic pregnancy. One striking point in the differential diagnosis to make clear an ectopic pregnancy would be the want of a large mass in the pelvis at the time the diagnosis was made. It is almost certain at that time she would not have had a mass the size of an orange, but a mass the size of a cocoanut, or even larger. I am not willing to concede that it was an ectopic pregnancy. The second case was proven. I was in the operating room of a most distinguished operator a few months ago, and there must have been twenty operators of note present. He removed a small tumor the size of a large orange, laid it on a pus pan, and some one spoke up and said: "What is that, doctor?" He said: "It is some one of a dozen things, and I want some of you to tell me what it is." There were twelve or fourteen guesses, and not one said it was an ectopic gestation; yet there was a fetus in it. When we come to record a second tubal pregnancy we want to be certain that we are recording facts.

Speaking of different routes of operating for ectopic pregnancy, I think the largest number of operators in the largest

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number of cases would take the abdominal route. There are cases that would have a better chance with a vaginal operation. Take that desperate class in which the symptoms lead us to believe the hemorrhage has ceased and the patient is suffering from infection of the blood clot. When the complications from above are to be taken into consideration, it looks as if that case has a better chance to unload her sepsis when we cut through the vagina. The patient whose case was reported died. She would almost certainly have died had he cut her from above. She did not die of hemorrhage. The unfortunate thing was that she was not operated upon soon enough. I believe we are learning every day that we can do a life-saving operation in these cases by draining through the vagina, letting out the accumulation of pus, without the hope of radically curing them. I believe a large number of good men fight the vaginal operation because they do not grasp the full situation. They fight it because they know, as I do, that we cannot always cure these patients permanently by the vaginal operation. But we can unload them, and then later they have a better chance to recover from a radical operation. As to the advisability of removing the other tube, the profession is not yet united on that. You know the pendulum is swinging to save as much as you can of the woman's organs. If you can save half an ovary, do so; and if you can save one and a half, do so. But it is a very important question for the woman, and a very embarrassing question for the operator, to know what is best in each given case. Take the case reported at the June meeting by myself. From any naked-eye appearance she had a perfectly healthy ovary and tube, but in ninety days she had an ectopic pregnancy on that side, necessitating a second operation. Since then I have had a woman about 35 years of age who married a man about the same age, apparently perfectly well; he never had any sexual disease. The woman had never had any illness or pelvic disease. She had a tubal pregnancy before she was married nine weeks. The other ovary and tube were apparently as healthy as any. I said in the other case I would take them all out, but when I came to this I did not, because both the patient and her husband were anxious to save it.

Dr. Edwin Ricketts.—There was a time in the operation for extrauterine pregnancy when it was considered a very dangerous procedure to attempt the complete removal of the placental sac. I think, in the present manner of dealing with these cases, no operator is justified in leaving a part of the placenta. There is danger, when a portion of the placenta is left, of hemorrhage, even with the gauze packing, and it is better to clean out all the placenta and deal with the bleeding vessels at that time than to leave the placenta and attempt to control the hemorrhage by packing. As to the point of attack, I think the last speaker on the floor has well expressed my opinion, that if you are satisfied you have extrauterine pregnancy with suppuration, you had better attack the mass by the vaginal

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route. I do not know why it is that such patients do not suffer so much from shock, that is, if you do not attempt to do too much at one sitting. I am quite certain we will accomplish more by simply opening up this abscess, draining it, and if necessary afterward do a second operation of abdominal section. As to the removal of the other ovary, if you look over the cases in which extrauterine pregnancy has occurred twice in the same subject you will find the percentage is very low, possibly one-twenty-fifth per cent. Would such a low percentage justify the removal of the opposite ovary? Isn't it better to leave it? Unless you have prima facie evidence of disease on the other side, it is our duty not to disturb that ovary. As to the abdominal route, I have had a number of these cases to deal with, and I have never failed to remove every vestige of the placenta; and since the vaginal route has come so prominently before us, of course that is to be considered, for the reasons given heretofore.

DR. CHARLES BONIFIELD.—In regard to the case in which I was interested, I chose the vaginal route for the reasons Dr. Hall has expressed. The patient was *in extremis* when I saw her, profoundly jaundiced; and we know, from our experience with gall-stone patients, such cases do not stand long operations. I knew we would have adhesions to deal with in the line of the incision if we operated from above. There was a large amount of blood lost, but it was not bright arterial blood, and I think the patient did not die from hemorrhage.

In regard to removing both the appendages, I agree with Dr. Ricketts that the number of cases of ectopic gestation occurring twice in the same patient are so few that it does not seem to me we would be justified in so doing, unless, as Dr. Palmer said, we are certain the case is of gonorrheal origin. This is frequently the case. We must also be governed by the things that usually influence us in such matters—that is, whether or not the patient is extremely anxious to have a child, whether she is young or old, etc.

In regard to leaving the placenta, I think at times it is perfectly justifiable to do so. No one can tell what he will do with a case he has never seen. I think, in Dr. Schoolfield's case, if it had been possible to remove the tube he would have done so.

DR. HALL.—I would like to ask Dr. Ricketts if in an operation at the sixth to the ninth month he would always attempt to remove the placenta.

DR. EDWIN RICKETTS.—I most assuredly would.

DR. BYRON STANTON.—I would like to ask if there are on record any cases in which patients have been delivered, after ectopic pregnancy, of children in the regular manner. It seems to me that is the thing for us to consider before we go to ripping out the ovaries and tubes in all these cases. I can conceive of there being such a diseased condition of one tube as to produce an extrauterine pregnancy, while on the other side there might be no interference with normal gestation.

DR. PALMER.—I would answer that question from my own

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personal experience. I operated upon a lady whom I thought almost dead. I was almost afraid to put her on the table for operation; she was pulseless and blanched from loss of blood. After the operation she had no pulse, and I put her on the bed, thinking she would die at once. I stimulated her per rectum and she got well. She has since been delivered of a child at term.

Now, I wish to be specific in the statement as to when to take out the tube and ovary on the opposite side. I would never take it out if it is healthy, but if it is diseased, particularly if we know positively that there is gonorrhea, proven by the history and microscopic evidence, I would remove both tubes. Many of these cases we know have gonorrhea. If there is any suspicion of gonorrhea it becomes our duty to make a microscopic examination before operation. We know the history of some of these cases, for sometimes there is a chance of seeing the case before and making a microscopic examination.

DR. EDWIN RICKETTS.—It just happens that the last three laparatomies I have had were double laparatomies in which I have had to remove ovarian tumors from both sides. One was a large ovarian tumor on one side, and on the other side an ovarian tumor only about the size of a walnut. In another case there was an ovarian tumor on one side of fifty pounds, and on the other side a tumor smaller than an unhulled walnut. In the third case each tumor was about the size of a cocoanut. I only speak of these in line with what we have been saying about the removal of the opposite ovary. We might say in the case of the fifty-pound tumor, which was of quite long standing, that it was only a question of time when the other side would be involved. In the case in which both tumors were about the size of a cocoanut it would seem that they were almost simultaneous in development.

DR. C. D. PALMER.—When Dr. Ricketts takes the position that it is best to remove the placenta he should be more explicit and define the limits of propriety of removing the placenta. There is a great difference between removing a placenta during the third or fourth month, one at the eighth or ninth month, and one at the thirteenth, fourteenth, or eighteenth month of ectopic pregnancy. After the time of normal delivery the placenta shrivels in size, and it is easier to remove it at the eighteenth month than at the ninth month. In other words, the smaller the placenta the easier and safer it is to remove it. I do not think it should be removed in every case.

TUBAL ABORTION; OPERATION AND DEATH IN EIGHT DAYS.

DR. JAMES FRANKLIN HEADY.—At the April meeting I had the pleasure of reporting a case of double tubal pregnancy. The left tube ruptured ninety-seven days after the right. You remember that with the last specimen the fetus was found. The patient is entirely well. Mrs. D., æt. 32, English, married, always healthy until two years ago, when she had an abortion.

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Since this time she has had more or less pain in the pelvis. September 19, 1896, was due to menstruate. For some time previous to this the pelvic pain increased upon the right side, accompanied with indefinite symptoms of pregnancy. On the 29th, at 7 P.M., pain commenced in the right ovarian region, extending down the anterior of the corresponding thigh; nausea, vomiting, thirst, extremities cold, pulse 80, temperature 98°. One-quarter of a grain of morphia given hypodermatically. September 30, 7 A.M., all symptoms have improved. At the same time as on the previous evening she had a return of all the symptoms, only intensified. October 1, 4 A.M., a third return of same class of symptoms, but more severe than last attack; pulse 120, temperature 97.5°, great thirst and vomiting, surface covered with cold perspiration. Vaginal examination found the uterus pushed to the left, the whole pelvic cavity filled with a boggy mass. The examination was extremely painful. Dr. Hall was called and saw her at 10 A.M., when the diagnosis of ruptured tubal pregnancy with a large hemorrhage was confirmed. She was operated on just as soon as suitable preparation could be made. Present, Drs. Colter, French, and myself. The peritoneal cavity was filled with blood, fluid and clotted. The fimbriated end of the right Fallopian tube was dilated large enough to admit the thumb. The fetus and placenta had been extruded, without rupture of the tube, into the peritoneal cavity. The patient never fully rallied and died in eight days. Death was due to the excessive hemorrhage before the operation.

DR. RICKETTS.—This case should impress upon us the importance of quick action. More than a majority of these cases should be operated upon as soon as the diagnosis can be made. As to the controlling of hemorrhage, the ligature should go on first and then you can break up the adhesions.

GALL STONES.

DR. RUFUS B. HALL.—I have in these two small bottles some gall stones, and as this Society deals with abdominal surgery as well as gynecological procedures and obstetrics, I thought the presentation would be proper. The specimens that were not broken up were in the gall bladder. The others were in the cystic duct; they were removed by a sharp curette and were broken in getting them out.

The patient, age 32, was the mother of three children and had been a sufferer from obscure abdominal pain for a number of years. Various things were believed to be the cause of her pain and sickness. The diagnosis of gall stones was not made until a day or two before the operation. During her last illness she had fever and sweats. Finally a tumor was discovered in the region of the gall bladder.

Operation revealed that there had been no communication between the hepatic and cystic ducts for a number of months. When suppuration took place the gall bladder enlarged to the size of a closed hand. Two or three small stones were encysted

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in the cystic duct. From inflammatory exudation the tube was closed on either side of them. It was not a difficult task to remove these. The operation was a cholecystotomy. I had considerable trouble trying to establish communication between the hepatic and the cystic duct. I finally established it and the flow of bile became free. Only one dressing, the first, was stained with bile. The house doctor said that while I was away on my vacation the sinus all but closed. This finally closed and the patient felt well. After a week or two she had some pain and the wound opened and discharged some mucopus. She came to my office and gave me an opportunity to try to open it by probing. I took an ordinary uterine sound, and, after a little manipulation, had bile running all over the side of the abdomen. In a few days the external sinus healed and the patient ceased to bother me.

In cholecystotomy, if you cannot establish communication with the hepatic duct, you will have trouble with a distended gall bladder afterward. I had made up my mind to have the patient undergo another operation if I could not establish this communication. My other operation would not be cholecystenterostomy ; I would excise the gall bladder.

DR. C. L. BONIFIELD presented a specimen of

FIBROID UTERUS WITH ATTACHED APPENDAGES,

and made the following report of the case :

Miss T., age 35. Menstruation began at 11 years ; flow moderate, lasting three or four days, always painful. Seven years ago she was in Christ Hospital under the care of Dr. George E. Jones for nervous prostration and dysmenorrhea. He dilated the cervix General health improved under treatment, but menstruation remained painful.

In August, 1896, she was compelled to take violent exercise during the menstrual period. She suffered greatly at this time, and a few days later she had a peculiarly miserable sensation in the dorsal region of the back, extending up to the cervical. At the same time she noticed a tendency of the left foot to drag when walking. This soon disappeared, but returned the next menstrual period. It kept returning with each menstrual period, lasting longer each time, until the use of the limb was almost entirely lost. She observed that after taking an enema while the bowel was distended with water she could walk better.

Last winter she was confined to bed eight weeks on account of the distress in her back. After this she could use her legs somewhat better. Menstrual flow has increased for the last two years, and for the past few months has lasted from ten to fourteen days. Menstruation in July lasted but a few days, and since that her legs have not been so well.

She was operated on August 19 and the tumor removed. Convalescence has been satisfactory and the prospect of complete recovery good.

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DR. RUFUS B. HALL.—I wish to make a few remarks in regard to this specimen of fibroid. I will confine myself to the reflex nervous symptoms mentioned by the essayist. A portion of this specimen would occupy the true pelvis and the pressure of the broad ligaments would fix it. While it was not fixed by adhesions, it was fixed by the supra-abdominal pressure. It pressed on the nerves and caused the symptoms in the legs. Three or four years ago I reported a similar case, in which the tumor resembled two cocoanuts lying side by side. One of those masses filled the true pelvis and was adherent by inflammatory exudation. That patient suffered the same reflexes, only in an exaggerated manner, as the one narrated to-night, plus a pain on the top of her head. The pain in the legs was at once referred to the head. She suffered more from the pain in her head than from the pain in the legs. It was a question, before operation, whether that patient was not a subject of locomotor ataxia. She is now well, and I doubt not at all the doctor's patient will have all her symptoms disappear and will get well. It is a beautiful specimen; the patient deserves to get well.

But the doctor will quit using silk for ligating the vessels below the peritoneum. The ovarian arteries he can tie in this way all right, but he will quit tying the uterine arteries with silk. We will all quit it. I am quite certain I have quit it, never to commence any more. The silk becomes infected, just as silkworm gut and wire are infected in the Bassini operation. The surgeon cannot do surgery differently in the abdomen than in any other part of the body. Men who are keeping abreast of the times are ceasing to use silk in the Bassini operation, because too many cases come back with sinuses.

DR. SCHOOLFIELD.—Would you recommend catgut for tying the uterine artery?

DR. HALL.—I am not willing to put myself on record as to what I would recommend. I said in a paper recently that we must quit this operation or we must change our technique. If we make total extirpation, tying with silk, we must leave one end of the ligature long and close the peritoneum over it; or if it is desirable to leave the cervix, we can cut a hole back of it and bring the ligature out in that way. I believe we must use some animal ligature, and I believe the kangaroo tendon is the best.

DR. EDWIN RICKETTS.—I would like to know if Dr. Bonifield has any suppurative process to deal with in this case some six months or a year from this time. The French surgeons claim that we have risks as to hernia following abdominal section. They are right. They claim that the ligatures are an objection. We have here Dr. Hall's experience, which shows eleven sequelæ following Baer's operation. The time is coming, and it is not far distant, when the members of this Society will remove tumors of this size by morcellation, and the result will be better than following the Baer operation.

DR. BONIFIELD.—I was told by one of the most prominent operators of Philadelphia that Jacobs operated on a case in his

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hospital while in this country and that the recovery was by no means without pus. This gentleman also remarked that a friend of his had been abroad recently and had learned that Jacobs, after his return from America, was employing the abdominal route much more frequently than he had been doing.

In a woman with a large vagina and a small tumor the vaginal is the proper route. But the time will never come when I would choose that method in such a case as this. As Dr. Hall has said, we know the peritoneum will take care of silk and other tissues will not. If we sew the kidney up with silk a large part of it is in connective tissue and will not be absorbed. This is the reason such cases so frequently have subsequent trouble from the silk. Last winter I removed a fibroid uterus at the Good Samaritan Hospital. Years before I had removed its appendages to stop its growth, using silk as ligatures, and I could not find a vestige of the silk present. It had been absorbed. Dr. Baer himself made the point in discussion that that was an objection to the separation of the uterine and ovarian arteries and tying them by themselves, as Dr. Baldwin, of Columbus, had recommended. Dr. Baer advised leaving the ligature within the peritoneum, and he sticks to his original technique and claims if we follow that we will not have trouble with the silk. I have had some trouble with silk in other cases, as Dr. Hall says I will have in this case, and therefore I close the cervix and prefer to close the pelvic peritoneum with catgut. But I do not feel like tying the vessels with catgut.

The advantage in tying the uterine artery by itself, after stripping the peritoneum down well in front and pushing it aside and isolating the artery, is that you absolutely know you have not a ureter. When you include the peritoneum you have to tie it in the dark, trusting to your knowledge of where the ureter ought to be. You must choose the lesser of two evils. If the tumor extends well down into the pelvis and involves the cervix, you cannot be sure as to whether you are tying the ureters without exposing them. But I do not believe the ureters were in danger in this case. In each case the operator must be governed by what he thinks is best. I believe infection of ligatures comes largely through the cervix. I think in the very great majority of cases the cervix treated as I have described will grow together and effectually prevent infection from below, and the ligatures, if surrounded by peritoneum, will disappear without causing the slightest trouble.

Meeting of October 14, 1897.

The President, C. L. BONIFIELD, M.D., *in the Chair.*

DR. THADDEUS A. REAMY reported a

VAGINAL HYSTERECTOMY FOR CARCINOMA.

The patient was a woman 38 years of age, the mother of

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three children. She had recently lost weight rapidly, had an offensive discharge and some hemorrhage. Physical examination of the chest revealed a chronic bronchitis. At intervals there was some albumin in the urine. The uterus was fixed, but not greatly enlarged. The most rigid examination failed to disclose any masses in the broad ligament. The patient's abdominal wall was very thin and there was some fluid in the peritoneal cavity. I removed the uterus from below, using ligatures on one side and a ligature and clamp on the other. A considerable quantity of fluid escaped and the small intestine and omentum appeared in the wound. The large intestine was firmly adherent to the broad ligament. There were also adhesions between the cecum and the broad ligament. The small intestine was adherent to the upper portion of the uterus. I separated these adhesions, crowded the omentum and small intestine back into the cavity, put in iodoform gauze in liberal quantity around the clamp, and left the ligatures long. She has made a good recovery. At no time has there been more than a degree of temperature, and the pulse has never been over 100. The cough was almost entirely cured by the ether. I have for a long time, instead of being deterred from the use of ether in cases of bronchial trouble, rather recognized the ether in these cases as a curative agent. I have also come to the conclusion that ether is less liable to damage the kidneys in these cases than chloroform, and it is safer than chloroform; it is eliminated from the system by lung and kidneys quite as promptly as is chloroform, and the cases do better.

I present the case to show that vaginal hysterectomy can be done in cases where there are extensive adhesions and where you are unable to bring the uterus down before the operation. The complete drainage that is secured by operating on these cases from below, the complete access which you can have to all adhesions with the hand, the absence of hernia after the operation, and the facility with which you can remove all the diseased tissue, are points to which I would call your attention. Of course I am not now talking about cases where the disease has extended to the pelvic wall and down and beyond the ureters, because I never operate upon cases of that kind.

I never in these cases stitch the peritoneum to anything. I never stitch the base of the broad ligaments one to the other. You get a completely closed vagina above in every case, if the disease is completely eradicated, if you sew nothing. This method will, I am aware, be pronounced a step backward.

DR. RUFUS B. HALL reported a case and showed the specimen of a

SUPPURATING OVARIAN TUMOR WITH EXTENSIVE ADHESIONS.

Mrs. R. is aged 31 years; married six years; has no children. She has known of the existence of the tumor for about two years. She was examined by good physicians on the Pacific

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coast and a diagnosis of fibroid tumor of the uterus was made and operation advised.

The clinical history was that of a fibroid tumor. It was apparently solid, was the size of an adult's head, was not movable, and was crowded into the pelvis and adherent there. The corvix could be felt high up behind the symphysis. At the examination I was in doubt as to the true character of the growth. The clinical history, the slow growth, and the fact that I could elicit no fluctuation led me to believe that the growth was probably a fibroid, and I so stated.

The patient entered my private hospital October 3, 1897, and was operated on the 7th. Cleansing the vagina under an anesthetic, preparatory to doing an abdominal hysterectomy, I had considerable doubt as to the correctness of the diagnosis of fibroid. After I opened the abdomen and the tumor presented, it had the exact appearance of a fibroid of the uterus. There were no adhesions directly in the line of the incision, but there were adhesions low down in front and behind, and in the pelvis I fastened a strong volsella forceps near the fundus of the tumor, with the view of making traction to lift it out. Along the bite of one of the prongs a few drops of suspicious-looking fluid escaped. I at once removed the forceps, tapped the tumor, and removed more than half a gallon of fluid that to the naked eye had the appearance of pus. I then closed the trocar opening with forceps and proceeded to enucleate the tumor. It proved to be an exceedingly tedious and difficult task. In a sulcus on the posterior part of the tumor the colon, just above the sigmoid flexure, was embedded for a distance of about five inches, and it was impossible to separate the bowel without extensive injury. There was a ragged place, a half-inch broad and five inches in length, where the peritoneum was detached, and several places where the muscular coat of the bowel was torn. Fortunately no tear entered through the mucous coat. This was repaired with fine sutures. The uterus was slightly enlarged and was firmly adherent to a portion of the cyst wall. This left that portion of the uterus denuded of its peritoneum. The patient and her husband were exceedingly anxious not to have the uterus removed if it could possibly be saved. As one ovary and tube did not seem to be involved enough to justify their removal, I was also anxious to save the uterus, even though it were injured. By ligating the uterine artery low down on the right side—the side from which the tumor sprang—passing four or five sutures under the bleeding points in the uterus and tying them, I was able to control the hemorrhage. The entire pelvic cavity proper was as raw and ragged as though I had stripped it of its peritoneum. There were numerous points of oozing. For this reason I packed the pelvis with gauze and placed a drainage tube above the gauze. There was considerable oozing for twelve hours. I removed four or five ounces during this time. The tube was removed at the end of twenty-four hours. The gauze was removed on the 12th.

The case is interesting as emphasizing the extreme difficulty

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in making a positive diagnosis in small abdominal tumors. Even after the abdomen was opened I tried to get fluctuation and could not. To the naked eye it was a fibroid, and I felt certain of it until after I had fixed the volsella to it, tearing it enough to permit leakage of the contents. The clinical history of the two conditions is very similar. The operation was one of the most difficult I have ever performed.

I wish to again call your attention to the great utility of gauze packing in these cases. It is one of the great advances in pelvic surgery. We utilized the gauze in this instance for two purposes—to check the oozing, and to prevent the intestines dropping into the pelvis and forming adhesions there. Intestinal adhesions in the pelvis in many instances mean intestinal obstruction before the patient is convalescent. In my early work in similar cases I am certain the cause of the intestinal obstruction was the adhesion of bowel in the pelvis. It could have been prevented by this method. For this reason, in all these desperate cases I have adopted this plan of walling off the pelvis.

The patient is thoroughly convalescent, with a normal pulse and temperature, and, I think, past any danger connected with the operation.

DR. CHAUNCEY D. PALMER.—An accurate diagnosis prior to abdominal incision was in this case an impossibility. Where a tumor is so packed full of fluid and so surrounded with adhesions in the pelvic cavity, it is an utter impossibility to say exactly what it is prior to operation. The diagnosis in this case rested, of course, between an ovarian cyst, adherent, full of fluid, semi-solid, and a fibrocyst of the uterus. It was clearly not a case of interstitial fibroid tumor, because the uterine measurements were only three and a half to four inches. It was certainly an extrauterine fibrocyst or an ovarian cyst.

No intelligent physician or surgeon would to-day think of employing electrolysis in this kind of a fibroid tumor. I am a firm believer in the usefulness of electrolysis in the successful management of certain fibroids of the uterus, but never for an extrauterine growth which has undergone cystic degeneration. It is the indiscriminate use of a valuable remedy which has brought it into unmerited disrepute.

DR. CHAS. L. BONIFIELD.—I want to corroborate what the doctor has said about the value of gauze as a means of arresting hemorrhage, and, more particularly, keeping the intestines out of the pelvis, making the abdominal and pelvic cavities two distinct rooms. But my method of employing gauze is different from Dr. Hall's method, and possibly because it is different I think it is better. I almost invariably bring the gauze out through the vagina. It takes almost no time to make a hole behind the cervix. and by so doing we have the advantage of gravity for drainage and we escape the danger of hernia which the gauze through the abdominal wound causes. It is true, when the drainage tube is left in only twenty-four or forty-

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eight hours you can generally get union, immediate and firm; but when it is necessary to leave in some foreign body for a number of days, as it was in this case, I think it must inevitably prevent immediate union, and a secondary union is always by the formation of a good deal of scar tissue, and scar tissue will stretch and predispose to hernia. It is the rarest of things to have a hernia in the vagina. So for this reason I think it is, in these cases, wise to bring the gauze through the vagina.

DR. EDWIN RICKETTS.—An unmarried lady came to me a few weeks ago with a history of uterine hemorrhage. A tumor the size of a cocoanut, extending above the symphysis pubis, as hard as a croquet ball, led me to say to her physician that in all probability we had a fibroid tumor to deal with. On opening the abdomen the tumor first presenting itself had a thick cyst wall, was full of gelatinous substance, and I would defy any man to say whether or not it was a fibroid. In connection with that, this tumor sprang from the left ovary. From the right ovary sprang a tumor not quite as large as the first, and in connection with the left ovary was a parovarian cyst as large as an orange, and on the other side two parovarian cysts, each as large as an orange. After turning the uterus up, here was a fibroid on the posterior wall, as large as my thumb and about two inches in length, which accounted for all the bleeding. We hear much said about the differentiation of these tumors from the outside, and I want to repeat that I think there is too much stress on this.

DR. RUFUS B. HALL.—I emphasized the fact that several gentlemen had seen this case and made a diagnosis of fibroid tumor, to bring out one point—the difficulty of exact diagnosis in small pelvic or abdominal tumors. In other words, men who have opened the abdomen every day and every week for years and years are willing to admit before each other that they do not always make a correct diagnosis under these circumstances. Men who are treating these cases by electrolysis—that is, who treat fibroid tumors by electrolysis—who persist, in season and out of season, in discussing the question and advocating electrolysis wherever they can get a hearing before a medical audience, insist that they always make accurate diagnoses. That, more than anything else, induced me to present this case before this Society.

I am inclined to think that bringing the gauze out through the vagina is a point well taken. I have done this on many occasions and expect to do it on many more, but in this particular instance I felt that I could do better service to my patient by doing it the other way. There was so much raw tissue that I felt I must pack the pelvis full of gauze. I must make a tumor there one-half or two-thirds the size of the one removed; I must make a tumor which would fill the true pelvis, or I would have the intestines adherent in the pelvis. In order to do this I put in the drain. There was one end outside and yard after yard packed in. I may have a hernia, I have had hernias, but this case promises better than most of them. I left a

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stitch untied to be tied later, and there is not even redness and it has not moistened the gauze since the packing was removed. But in an ordinary case, if we only want to drain and pack a little portion, there is no doubt of the value of drainage through the vagina.

I do not think it makes much difference in the final results whether we make a correct diagnosis or not in such cases as this, if we ever expect to make an operation. The operation is necessary for the woman's welfare when she gets to a point where the pressure symptoms and the other symptoms that usually go with fibroids demand relief. Then, if it is a fibroid, it should be removed; if it is a suppurating ovary it should be removed. But in these cases, if electrolysis is used, it either does no good or greatly complicates the operation when the patient is compelled to submit to one.

I am quite surprised at Dr. Reamy's remarks in reference to the use of anesthetics. It is his opinion that ether does better than chloroform in chronic bronchitis and that it cures these cases sometimes, and he advises it in preference to chloroform. Patients suffering from bronchitis used to die when I used it, and I quit using it for that reason. And the kidney cases, he says, get along better with ether. That is not my experience. I would like to go back to ether, if I felt as Dr. Reamy feels in this matter, but in one year I had three deaths directly due to ether—one on the sixth day, one on the ninth, and one on the twenty-third day after the operation. I thought that was too great a mortality from ether in one year. One had trouble from the effect on the lungs and two from the bad effect on the kidneys. I have not had any such misfortunes as that from the use of chloroform. I have used chloroform, with but two or three exceptions, for more than four years, and I have had no accident of any kind that could be directly traced to chloroform. Of course in ordinary operations, if the patient were to have a bronchitis the ether would not hurt it much, but in feeble old women it would be different.

I do not agree with the essayist in reference to not sewing up the peritoneum in vaginal hysterectomy. I believe we should protect the peritoneum wherever it is possible to do it. Nobody can make a vaginal hysterectomy and not have sloughing and pus in the wound that would endanger contaminating the peritoneum. Of course the opponents of this theory would say it is well sealed off with gauze that protects the peritoneum, and it does in a measure, but when you pack in gauze to the size of a fetal head, almost, you must necessarily have at the top of the gauze the intestines and omentum resting against it. They are agglutinated together before you take the gauze out. Adhesion takes place and the intestines are more or less contracted and drawn into the wound. This is a source of danger to the patient subsequently in the way of intestinal obstruction. A doctor in Kansas City reported a case a year or two ago in which he made a hysterectomy and packed with gauze, and a coil of ileum was included in this contraction and his

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patient had intestinal obstruction and died. He tried to get a second operation, but was refused. He got an autopsy and showed the specimen at Richmond last year at the meeting of the American Association of Obstetricians and Gynecologists. One-third of the calibre of the bowel was caught in the pelvic floor where the edges of the peritoneum should come together. I have a case now, a vaginal hysterectomy made a few months ago by a good physician who packed with gauze, in which there is complete obstruction, caused, I believe, by a coil of bowel caught in this way. She can only live on fluid diet. She and her husband refuse an operation for relief. The operation was a vaginal hysterectomy for cancer. There is no indication of recurrence anywhere in the body; there are no enlarged glands. The condition came on within two or two and a half months after the operation. This woman is going to die if she is not operated upon.

I have had some unpleasant experiences from packing with gauze. The only case of vaginal hysterectomy that I have lost in the past two years was one that should not have died. The patient was as good a subject as I ever operated upon, except that she took chloroform badly, vomited while she was still on the table, and continued to vomit. I thought it was the chloroform. I waited eight or ten hours before I was satisfied that it was an intestinal obstruction. I found then a coil of ileum forced in between the layers of the gauze, so when I pulled the gauze out the ileum was glued to it and came out. I liberated it, replaced the gauze, but I lost my patient. I had closed the peritoneum many times before, and I said to my assistant that I would not close it this time because other men do not close it and the patient was taking the chloroform badly. Maybe I would never lose another case, but if I can close the peritoneum and close every ligature off from the peritoneal cavity I shall certainly do so. And you can do it perfectly, because the lymph is thrown out and closes them off from the peritoneal cavity. Then you can, if you wish, pack the gauze loosely and protect the intestines.

DR. REAMY.—You seek to close the flaps anteriorly and posteriorly above the ligature with which you secure the ovarian artery and the round ligament?

DR. HALL.—I go above everything. I take a strong catgut, catch the anterior flap or fold of peritoneum as near the outer edge as I can, then I catch the broad ligament and then the posterior flap, and I tie the end of my ligature then including this. Then I catch only the peritoneum over and over until I get one-half across. I can then pull it like a purse string. I do that with strong catgut. Then I do the same on the opposite side. Then I tie the two ends like a purse string. I do not want to differ from Dr. Reamy for the sake of differing, but I do differ from him on this point, because I believe it is an advance in the technique of vaginal hysterectomy. Dr. Ricketts' case of gauze in the cavity eight days after the operation is four or five days longer than I like to leave it in.

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DR. RICKETTS.—That patient was the best I ever had; next time I will leave it in longer.

DR. PORTER.—I have always believed that ether predisposes to inflammations of the kidneys and likewise of the bronchial mucous membrane, because it lowers the temperature. There is no doubt, I presume, in the mind of any man who operates, that the effect of ether is to lower temperature. I have tested the matter several times where the ether was given simply for the purpose of examination, and I have invariably found a lowering of temperature—sometimes a degree, and even a degree and a half; and in prolonged operations I have no doubt it has even greater effect. Nevertheless I am inclined to think Dr. Reamy's statement may be true if he operates in a room that is warm, in the neighborhood of 90° F., or if he uses extreme care to preserve the body warmth of the patient and in that way prevent this lowering of the temperature and the consequent ill effects upon lungs and kidneys. I have given anesthetics quite frequently, and for the last six or seven years I have tried to avoid the ill effects of ether in this way. I think I have never seen a case where there has been serious damage done to the kidneys, except one, which was a bad case in every way, and the damage may not have been due to the ether entirely. Nor have I ever seen a pneumonia or bronchitis that I could attribute to the ether. I believe the reason for this is that I have always taken care to preserve the body warmth of the patient. If the temperature of the room is cool, as it is sometimes owing to careless arrangements, there will be very great loss of heat, and unless this is guarded against very carefully I think we will see many cases of injured kidneys and lungs. I remember reading, one or two years ago, the experiments of some German who claimed he had proven experimentally that there was as much danger to the kidneys from chloroform as from ether, and he gave a number of experiments that would seem to prove that this is true; but the experiments were not made with reference to this element of heat, so I do not know how much real value they had. My belief is that if the operator is able to secure the assistance of an anesthetist who is capable of giving chloroform properly, his results will be as good, perhaps, as when he uses ether. There is very much more danger in giving chloroform if it is not given with great skill. The method of calling upon the most inexperienced man to give the anesthetic should almost go hand in hand with the giving of ether, for ether may be given with comparative safety by any one. The danger is usually very slight from faulty administration, while with chloroform faulty administration is very dangerous. The immediate dangers from chloroform are certainly a hundredfold in comparison with those of ether.

DR. HALL.—Where does the danger of a hundredfold lie?

DR. PORTER.—From getting too much in the system at one time. Chloroform is carried off very rapidly, and very little of it stays in the system during the operation, and only a small

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portion is necessary. If the patient, after a very deep inhalation of concentrated chloroform vapor, holds his breath for a sufficient time to allow the chloroform to get into the circulation, then you have a point of very great danger. Another thing, and here is perhaps what causes the largest number of deaths: The reporter, in many cases of death from chloroform, states that immediately after replenishing the cone the patient showed bad signs and the anesthetic was stopped and everybody tried to revive the patient. The trouble, I believe, is the giving of too much chloroform just at that moment. The patient may seem to be coming out, and the anesthetizer will put a large quantity on the mask or whatever he is using, and the patient will inhale nearly pure chloroform vapor and will succumb just from the immediate effects of the chloroform. Unless you have a man to give it who understands that point and gives the chloroform uniformly, it is better not to use it. The best way, I think, is to use the Esmarch apparatus and keep dropping the chloroform at a uniform rate, which is very easy if you start in the right way. Then, when you get the patient under, keep on giving it, keeping a space as large as a silver quarter, or perhaps smaller in size, moistened constantly. Then I think it can be given safely.

DR. HALL.—Then, when the patient is profoundly off, you would not stop dropping the chloroform?

DR. PORTER.—I would get the patient to the right degree of narcosis and hold him there by dropping the chloroform uniformly. It is by stopping the chloroform, and then beginning it again and giving too concentrated vapor, that trouble occurs. I believe the case of death after an interval of twenty-one days, mentioned by Dr. Hall, would be very difficult to attribute to the ether.

DR. HALL.—The cough commenced at once with the giving of the ether and continued until the patient died.

DR. EDWIN RICKETTS.—I began the administration of chloroform in 1879 and I have been an advocate of it from that day to the present time, and I want to say that I use no other anesthetic in my abdominal work. If a man believes that ether is the best anesthetic he should give ether and not use chloroform. On the other hand, the man who believes that chloroform is better should use chloroform altogether and not give ether. I saw a case under Mr. Tait's care die of ether bronchitis. Another case I saw die under the care of another operator from what we call "shock." I have never seen any bad result from chloroform. I do not want to be understood as saying that chloroform is not dangerous, for all anesthetics are dangerous. As for the quantity used, there is too much used. A teaspoonful for an operation lasting twenty or thirty minutes is enough. The point that the trouble is due to too much chloroform given at one time I think is well taken. The theory that ether is not harder on the kidneys or lungs than chloroform is rather new to me, and I was rather surprised to hear Dr. Reamy express himself in that way. As to the adminis-

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tration of chloroform, I want to say there is another point to be taken into consideration, and that is, not to be in a hurry to push the patient off. Give him time. If you start with the patient in a nervous state of mind it is not as good as if you start with him calmly. This subject is a very interesting one and one in which I have been especially interested. I have never regretted the use of chloroform. As to the A. C. E. mixture, I did try that for a while, and the result was I had more scares in the same length of time than I have ever had at any other time in my life. Perhaps I do not know how to use it.

DR. MAGNUS TATE.—I would like to inquire how Dr. Porter believes we should give ether. Should the patient be put under the influence of it in, say, five minutes, or should we take, say, fifteen or twenty minutes, going very slowly?

DR. PORTER.—When I give ether I always try to get the patient under in six minutes.

DR. JULIA CARPENTER.—One good point made by Dr. Ricketts, that I think holds good with reference to other things as well as the giving of ether and chloroform, was that it is better to adhere to the method with which one has the best success. It is often observed that one will acquire skill with a certain method or remedy, while another will not; hence contrary experiences about the same thing need not overthrow each other, nor deter the one that has acquired the skill from continuing with his own method.

DR. CHARLES L. BONIFIELD.—Some years ago I gave anesthetics a good deal, gave them for Dr. Reamy in nearly all of his operative cases for a number of years. He and I have come to somewhat different conclusions about anesthetics. I thoroughly believe that ether is much the safer anesthetic in the majority of cases, but I think any one who confines himself to one anesthetic when there are two good ones is simply not making use of all the instruments he has at hand. I am ready to believe what Dr. Reamy says about his cases of bronchitis getting well, but I am also ready to believe that that is the exception and not the rule. I think his experience in that line, just as one man's experience in any line may be, is not the experience of the profession in general. I have a number of times had occasion to have patients anesthetized in the last few years when they were suffering with bronchitis more or less severe, and in quite a large proportion of those cases I have commenced with ether and been compelled, from the stoppage of the air passages with mucus, to change to chloroform, when they would take the anesthetic comfortably and, as far as we could judge, safely. So I have come to avoid ether in those cases, following the general consensus of opinion that ether is dangerous in cases of pronounced bronchitis. But we can see how ether, if it does not kill the patient, may cure him. It irritates the mucous membrane, and when treating inflammation we often try to produce a cure in a similar way. Thus, we often cauterize sores on the outside of the body, or treat a chronic pharyngitis with strong solutions of silver nitrate. Neverthe-

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less I believe ether is dangerous in these cases. It is better to use chloroform and trust to other well-known remedies for the bronchitis.

In reference to the nephritis many days after the operation, I think those cases are largely due to the exposure of the patient. Many operators permit their patients to be too much exposed in a room that is comparatively cold. The ordinary operating table is iron, and most operators have only a sheet thrown over that, and the whole body, almost, exposed to the air. Under such circumstances the heat is rapidly dissipated, and we know chills from any source predispose to congestion of the kidneys. So I think the troubles often referred to ether may be due to other things than the anesthetic itself. Chloroform is certainly much the more pleasant anesthetic. I wish I were not afraid of it; I should infinitely more prefer to give it to my patients. But I believe if I were to take an anesthetic myself I should take ether, because it is safer. So, as an operator, I do not think I should consult my own comfort, but rather the safety of my patient.

DR. HALL.—What is a warm operating room?

Answer.—About 85° to 90° F.—never less than 85°.

DR. RUFUS B. HALL.—I would like to speak of two or three points. In reference to the patient losing heat, that is a well-known fact. Any man who would not protect his patient in this regard during an operation, if it were possible, would certainly be guilty of a criminal act. I never in my life saw a section made in an operating room that was cold.

DR. PORTER.—What do you call a cold room?

DR. HALL.—A room below 80° F. is a cold room for a section.

DR. REAMY.—I have seen plenty of them made at 75° F.

DR. HALL.—Two of my patients died after ether from suppression of the urine and in uremic coma. I could not get an autopsy to prove they had pre-existing kidney disease, but if they did there was nothing in the urine before the operation to lead one to suspect it. They were not operated upon in a cold room, nor was the anesthetic given poorly. I believe in those cases the anesthetic plus the operation was directly responsible for the nephritis. I could not, of course, say whether or not they would have died if they had taken chloroform. But I am strongly inclined to believe that they would not have died from nephritis if they had taken chloroform. Early in my work I had impressed upon me the necessity of protecting the patient from cold. I operate upon a table of iron and glass. I protect the tables thoroughly with blankets covered with a sterilized sheet. I take each leg and wrap it separately in a hot blanket. I always operate in a room so warm that my visitors often complain of it, and sometimes my assistants complain of the heat.

DR. PORTER.—I am quite certain that the temperature does not go down so much with chloroform, because the chloroform does not tend to dilate the capillaries of the skin as much

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as the ether does. I can corroborate Dr. Hall's statement as to his care in protecting his patients from loss of heat. There was one point occurred to me a moment ago; that is, that ether, if allowed to stand in a partially filled can, especially in a warm temperature, undergoes decomposition with formation of acetic acid, and is then very irritating to the lungs, and it takes a long time to get the patient under the influence of it. I know one instance such as this in which the patient coughed and required a long time to get any effect from it. By getting a fresh can the patient was soon anesthetized. A man who operates but seldom should get small cans. If he uses a large can it should be tightly corked and put in a cool place, preferably in an ice chest.

DR. THADDEUS A. REAMY.—I have no doubt that in the report of this meeting to-night it will seem rather anomalous that we should go from the discussion of vaginal hysterectomy and technique, and vaginal versus abdominal hysterectomy, and sewing the anterior and posterior folds of the peritoneum and leaving them unsewn, to an earnest discussion of the dangers of these two agents, ether and chloroform, and their relative merits. Yet there is such diversity of opinion and such diversity of method in the administration of these respective anesthetics that it is probably quite as important to the interests of our patients that we should dwell upon this subject from the point of view of our clinical experiences and our observations. I shall shortly offer a paper to the Academy upon this subject and will not now go into it *in extenso;* but I have clear convictions and will be pardoned if I express them. Dr. Porter has, without any doubt, given you a very important point. The dilatation of the capillaries from ether is very striking. The reduction of temperature is a uniform condition, and, without much doubt, is associated to some extent with dilatation of the capillaries and the rapid and enormous exhalations from the skin. Now, with this condition every man knows that it is absolutely essential that the patient should be protected from cold. In my own hospital I will not operate upon any condition with a temperature less than 95° F.. and I prefer it above that; and, particularly, I would not operate in a temperature less than that on a woman with bronchial trouble.

Now for the method of administering the ether. Let the patient commence taking it with the cone held far from the mouth and then closer and closer, and finally put the cone down over the nose and mouth. As soon as the patient begins to strangle let her take two inspirations with the cone removed, then put it on again and continue it. Do not consume more than three to five minutes in getting patient under; then keep her under until the operation is through, but, as a rule, do not replenish the cone with ether unless operation lasts more than forty minutes. By this method the patient inhales considerable CO_2 of her own manufacture and thus requires

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less ether. I recently saw a very distinguished operator in this city have a patient etherized and it required fifteen minutes, in another case twenty minutes, and yet everything seemed satisfactory. Certainly by such methods more ether is introduced into the system. My nurses give ether, as a rule. Before the inhalation commences I speak to the patient, obtaining her confidence, soothing her mind, allaying her fears. This precaution is, in my judgment, of value.

In reply to Dr. Hall let me say, in many cases where the patient showed considerable bronchitis without much expectoration I have given ether, and in but one solitary case has the patient not been benefited by the ether. The cough has subsided. This is not a speculation nor an accident, but a matter of clinical record.

Now we come to the question of sewing the peritoneum. In reply again to Dr. Hall, I know the force of my friend's statement from his rapidity as an operator and the facility with which he could do this, but in a number of cases I have operated upon, and in this identical case, the high position of the ovarian artery and the upper portion of the broad ligament—and they could not be brought down—would have made it necessary to close the anterior and posterior peritoneal flaps, would have been difficult from below, and much of the pelvic cavity would have been from below the flaps. I have done one hundred cases of vaginal hysterectomy within the last two years and a half in this way, with the clamp and ligatures, but chiefly with the clamp, and in not a solitary case have I had an obstruction or hernia. I do not think the method favors prolapse. As for the infection of the peritoneum, to which my friend refers, this is exactly the procedure to avoid it. I leave it open, first, because you abridge the time of the operation one-third in every case where you have not had difficulty; second, you cannot close the peritoneal cavity, even by the purse suture, so it is proof against infection from below if you close the peritoneum from below; third, if there is any fluid in the peritoneal cavity, or there should be any hemorrhage from any separation of adhesion, your beautiful closure, your diaphragm of peritoneum, has shut it off and you only have access to that which is below, whereas if you do not close the peritoneal flaps the whole field drains thoroughly and quickly. My friend has said that you never have these cases without a long-continued pus discharge, especially after clamps. If you include but little tissue in each ligature, and tie them tightly and cut a short stump or button, and have ligatures thoroughly disinfected, the amount of pus will be very small. I am utterly opposed to closing the peritoneal cavity. I think that "advance," so-called, in surgery is a mistake, and the recession from it will be the rule in a few years. I again repeat that the ultimate condition of the vagina is better when it has not been done.

DR. EDWIN RICKETTS reported a case of

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VAGINAL HYSTERECTOMY FOR INFANTILE UTERUS.

Mrs. J., æt. 43, menstruated at 16 years of age, very slightly and with marked suffering. Thereafter it was irregular and scanty, always accompanied with suffering. Married at 23. Never was able to complete the marital act; never pregnant, suffering sometimes. Dilatation followed by curetting afforded no relief; it was done seventeen years ago by one of our local gynecologists. She consulted me in April, 1897. Upon examination I found a very narrow and short vagina and very small cervix; depth of uterus, two-thirds of an inch. Her suffering for almost two weeks out of every four was severe, and for the past two years she claimed that it had grown worse. I advised vaginal hysterectomy. This was done April 28, 1897, and with difficulty, as the vagina had to be dilated in order that working space might be obtained. First the anterior incision was made between the bladder and uterus, separating them so that the hysterectomy needle could be brought into requisition. Ligatures were applied and the small uterus removed without accident. The peritoneum was not stitched across, so that the wound resulting from the removal of the uterus would be extraperitoneal; nor were the ligaments brought down and stitched to form a diaphragm, but the vagina, after being cleansed, was packed with a strip of iodoform gauze, which was permitted to remain for eight days, after which it was repacked. The ligatures are all away save one, which will be removed at the next visit to the city.

Meeting of November 18, 1897.

Dr. J. M. Withrow read a paper on

SOME PELVIC ABNORMALITIES.

Case I.—Miss L. P. came to the clinic for diseases of women at the Medical College of Ohio in July, 1891. She was apparently in unusual health and vigor, from the general appearance of bright eyes, rosy cheeks, and good nutrition, although the expression of the face indicated a degree of intelligence rather below the average. Her mother, who accompanied her, stated that she had never menstruated, but that for several months she had suffered from headaches, fulness of the head, and dizziness every four weeks. These attacks were associated with pain in the lumbar region, pelvic pressure, and mental depression. The patient had no convulsive symptoms at these periods, but had told her mother that she felt that her head would burst or she would go crazy. She was given a cathartic of aloes and directed to take a hot sitz bath every night, and return to the clinic if menstruation did not appear.

It is always the practice at the clinic to avoid the examination of young girls as long as possible, and in pursuance of this method the patient came several times during the next month

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and was given various simple emmenagogues, but no relief was secured. She was then told that an examination ought to be made to determine the condition of the organs of menstruation, and her consent was obtained. She was examined in the presence of her mother and Dr. W. W. Anderson, the assistant at the clinic. She was fully developed in the breasts, and the pubes were normal. Back of the meatus, however, there was not even a vestibular depression, and the skin of the perineum extended unbroken from the meatus to the anus. An examination of the rectum disclosed a firm, resistant body, without fluctuation, at about the proper place for the uterus; and, although it seemed somewhat larger than the virgin uterus, I did not think it could be anything else. The tissues between the finger in the rectum and a sound in the bladder seemed to be of usual amount, and no cicatricial cord or band could be felt. No ovaries could be palpated, but the vascular disturbance noted above presumed their presence.

Dr. Bonifield examined the case with me upon two occasions, and we agreed that it was a case of absence of the vagina rather than atresia, or that at least there was no cicatricial atresia and no evidence of retained menstrual fluid. The disturbance of the circulation and the mental hebetude at the flood tide of menstrual pressure were so great that we deemed it wise to construct an artificial vaginal outlet to the isolated uterus. Accordingly the patient was sent to the Presbyterian Hospital, and, with ether as an anesthetic and the patient in the lithotomy position, the operation was performed with the assistance of Dr. Bonifield. A sound was held in the bladder and a finger in the rectum, as guides. The skin was incised for an inch in the median line just back of the vestibule, and the remainder of the dissection done wholly with the finger and scalpel handle. For three-fourths of an inch the tissues were rather loose and areolar in character, when we came upon an area which separated easily in the median line and seemed to be the agglutination to two mucous membranes for a little more than an inch. Above this there was loose areolar tissue again for a half or three fourths of an inch, when the supposed uterus was reached. It looked like a uterus, and, except that it was fixed, it felt like one; but I am quite aware now that a kidney would look and feel much the same. In the part reached the os was not apparent; no great effort was made to find it by searching laterally or toward the rectum or bladder, but a vaginal glass plug about three-quarters of an inch in diameter was with some difficulty pressed into the newly made vagina up to the uterus and held in place by a T-bandage. It was our purpose to keep the vagina open for a short time and thus make such investigation for an opening into the uterus as might be necessary. But little time was taken in the operation, and the patient was put to bed in good condition.

I was called to see her in four hours, with the information that she was having a "nervous chill," and when I got to her bedside and examined her I had a nervous chill myself, for I

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found the dressings saturated with a reddish fluid with the smell of urine. I at once concluded that, in spite of the guide and the precautions taken, I had torn the bladder. I then passed a catheter into the bladder and withdrew about an ounce of urine not tinged with blood. The bladder was uninjured, but another dreadful alternative was forcing itself upon me. The ureters, one or both, had been abnormally placed in the straight and narrow median path followed by my finger in its search for the uterus. As I realized such a contingency I had another nervous chill. I had read carefully all I could find about the methods and dangers of making vaginas, but nothing was said about any probability of a ureter being injured. Everybody pointed out the danger of opening the bladder or rectum, but never mentioned the ureter. I knew very well that properly disposed ureters were never within an inch of the field of such an operation as we had made. I called upon my colleague, Dr. Bonifield, and told him the conditions and my fears. He was sceptical about any damage to the ureters and tried to laugh my fears away. We saw her together a few hours later, when there was no urine in the bladder but plenty in the dressings.

A few days later we made an opening from the bladder into the upper part of the organ, expecting later to close the vagina below the opening, thus making the upper vagina and bladder a common cavity and still leaving the vagina in its lower segment. A tube was carried through the urethra and bladder into the vagina, to keep the opening patulous. In a few days it slipped out and the opening closed. The patient's general condition was good, but the menstrual pressure came on in due time, announced by cramps and flushings, and was unrelieved. During all this time the bladder was distended daily by a solution of boric acid to prevent atrophy. Several times an opening was made into the upper vagina, but each time it closed before the vagina could be closed below the point where the urine entered. We finally decided to abandon the attempt to preserve any part of the vagina, and, immediately after making the opening from the bladder to vagina, to close the latter passage at its orifice.

The night before the day appointed for this operation the lover of the patient persuaded her to leave the hospital, and she went away with a uretero-vaginal fistula, and, as the bladder was probably not distended each day, it is to be inferred that it gradually contracted. I never saw the patient again, and never heard from her until two months ago, when I was informed that she had died last January. I have since made inquiry as to her health after she left the hospital. Every month she suffered from abdominal pain and intense flushing of the face and fulness of the head. Cramps occurred at the same time in all the muscles, which became so severe as to simulate and even equal epileptic convulsions, but no abdominal enlargement ever occurred. She gradually lost in weight and physical vigor, and became weak, thin, and feeble. Her

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cheeks were abnormally red and her lips unusually white. She was tall and thin, and had a slight cough. In January of this year she took sick, and, after an illness of ten days or two weeks, she is reported to have died of grippe.

The organ which came clearly within the reach of the finger and could be plainly seen through the vaginal glass plug at the operation, was considerably larger than the virgin uterus, and was fixed and solid, not fluctuant. It is not improbable that this was a kidney, as it is well known that the single kidney is sometimes found in the pelvis, and if this were the condition it could be easily understood how its single ureter might have been situated in the median line and been torn in making the narrow vaginal path. It is even more probable that this was not the uterus, or the very manifest effects at menstruation would certainly have produced after a time a great tumor of retained menstrual blood; and no such tumor ever appeared, although the menstrual molimina continued over a period of three years.

The vagina, uterus, and Fallopian tubes have a common origin in the fetus. The ducts of Müller arise, one on each side, near the Wolffian tube and extend inward until they meet each other at the median line, when they go downward side by side, like the letter Y, until they meet the urogenital depressions just behind the vestibule. Later the wall between these tubes disappears below their point of meeting in the median line, and the uterus and vagina become a common duct, which finally communicates with the outside by the disappearance of the diaphragm at the bottom of the urogenital depression. Hence it may be presumed that as there was no vagina there were probably no ducts of Müller, and hence no uterus or Fallopian tubes, although exceptions to this rule are recorded.

It is greatly to be regretted that we did not have opportunity to close the fistula and subsequently remove the ovaries, which evidently became a clear indication to relieve the many vascular symptoms which probably hastened death.

I have never had a case that gave me as much trouble, but it has been a valuable experience and will, I hope, be of service to others in teaching them to look out for the ureter as well as the rectum and bladder in such cases.

CASE II.—M. H., colored, unmarried, age 46, came to the clinic in July last, suffering from malaria. She stated that she had never menstruated, and an examination of the pelvic organs was made. The external parts were normal and well developed. The hips were broad and the mammary development was unusually good. The vaginal orifice was normal in size and shape, but the vagina terminated in a blind pouch into which no cervix projected, and no uterus could be palpated above the vaginal roof. No ovaries could be detected upon most careful conjoined manipulation. An examination per rectum was negative as to the presence of either uterus or ovaries. The patient had never had any vicarious discharge of any kind, and no vascular disturbances could be recalled as

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evidencing any nervous influence upon the circulation on the part of ovaries or tubes. The patient had never married, but had some desire for sexual intercourse, which had been indulged with gratification.

This case, as far as I have been able to discover, is very unusual in possessing a perfect vagina without any indications of uterus, ovaries, or tubes, except so far as the single physiological attribute of sexual desire indicates such organs. When, however, it is remembered that the patient was colored, this fact may partly lose its significance.

CASE III., age 23, called on me to have something done to bring on her "sickness," which she said had never appeared. She was to all appearances fully developed and in very vigorous health, having been married for a year. Her husband had told her that she was not properly formed, and she thought probably the establishment of menstruation would correct the deformity. She had only partially felt any sexual desire and that had only been a recent experience, having had no such feeling for some months after marriage.

An examination showed no real vagina at all, but a cul-de-sac about half an inch deep, capable of being made an inch deeper at the site of the vaginal orifice. It was lined by a sort of ill-developed mucous membrane, which seemed almost like a diaphragm, just behind the vestibule and between the labia minora, which, with other parts of the external genitalia, were fully developed. This pocket, which had evidently been extended by pressure, was nothing more than the deepening of the post-vestibular dimple which, in process of embryonic development, goes up from below to meet the advancing tube which subsequently makes the vagina and uterus. This vestibular depression had done well its part in its effort to meet the vagina, which never came, but had stopped short for lack of co-operation in the remainder of the genital mechanism. With a finger in the rectum and a sound in the bladder, no cord, band, or cicatrix could be found to represent the missing vagina. Careful rectal and recto-abdominal palpation failed to find either uterus or ovaries. The patient had never had any vicarious substitute for the menstrual discharge, and had no symptoms which could be in any way construed to indicate that there were cycles of heightened blood pressure expressive of Nature's desire to find a monthly vent.

When the patient was informed of the situation she became clamorous for an operation to increase the depth of what passed for a vagina. As there was no uterus above to require an outlet, it was thought best not to make an operation which neither necessity nor health demanded, and which was not essential to the family relations, and no surgical steps were taken. Then, again, there was the further consideration, upon which the books are silent but upon which my experience was eloquent, that in such cases there is no telling where the uterus might not be found.

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CASE IV.—Mrs. T. C., age 23, was sent to consult me in May, 1897, and gave the following history:

She had been married in the January previous and had gone on an extended wedding tour, including Cuba and the Bahamas, and had returned to New York in March, when the menstruation did not appear. She went to Washington and consulted a physician there, who expressed the opinion that she was pregnant, although he made no examination. She then returned to her home in Kentucky, and, the April menstruation not having occurred, she believed herself pregnant. About ten days, however, after the time of the expected April period a bloody discharge occurred, and she believed that she was having a miscarriage and called in the family physician, who expressed the same opinion and directed her to keep quiet in the hope that it might be arrested. The discharge continued for a period of six weeks, when, it suddenly becoming worse, he tamponed the vagina and sent her to Cincinnati for curettage. Immediately upon arriving here she sent for me, and I saw her about 8 o'clock in the evening and withdrew the tampon from the vagina, without making any inspection or any other examination further than to determine that she did not bleed to any considerable extent. I arranged to anesthetize her the next morning and curette the uterus. Imagine my surprise, when she was placed on the table, to discover that there was a double vagina! From the left vaginal canal there was some oozing. The mucous membrane in the canal on the right side gave evidence of having been tamponed. The two canals were about the same size, although the one on the left side was a little smaller than the other. Digital examination showed that this median septum went straight up to the cervix, and the cervix was not larger than the normal, with half of it on each side of the septum. Introduction of the sound showed that there were two separate uteri and that these diverged from each other toward the fundus. The left uterus, which was found to bleed upon touch with the sound, had a depth of four inches. The one on the right side was not tender and had a depth of about three inches. The septum between the two sides of the cervix was quite thin, but very firm; the septum in the vagina was thick and firm throughout its entire extent.

I proceeded to curette the uterus on the left side and to pack it in the usual way. The uterus on the right side, not having been tenanted, was not treated. I divided the vaginal septum from its lower extremity clear up to the cervix, but did not cut away any of its substance except a little at the upper part where it was continuous with the cervical septum. The cervix, upon inspection after the removal of its vaginal septum, looked just about as any ordinary cervix, with the exception of this flesh column which divided the os externum into two openings. The uterine packing was removed on the fifth day, and the patient's recovery was without unusual incident.

The case is the only one of the kind which I have ever encountered, and it was probably due to the fact that the ducts of

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Müller were not absorbed after they had come in contact in the process of fetal development, so that there was an uninterrupted channel leading from each Fallopian tube to the vulva. It can be very readily seen how in such a case as this we might have the phenomenon of superfetation, since, so far as I could see, either one of these uteri was sufficient to have carried a child to term. I told the husband of the patient of the existing condition and instructed him to call the attention of his family physician to the abnormality in case she ever became pregnant, which, so far as I know, has not yet occurred.

DR. STARK.—I would like to ask whether the patient was pregnant at the time Dr. Withrow saw her.

DR. WITHROW.—No.

DR. STARK.—Then what would you ascribe the increased size of the left uterus to? Do you think the Fallopian tube was continuous with the uterus? One side, I believe, was four inches in length. It would seem that the upper portion of the duct of Müller had not been separated from the lower portion, and it would appear that the Fallopian tube had become continuous with the lower portion and contributed to increasing the size of the uterus on that side. The other side was possibly normal or only a little increased in size

DR. WITHROW.—My impression was that she had been pregnant on one side and had miscarried, and this was in the process of involution.

DR. THADDEUS A. REAMY.—Mundé has reported several of these cases, and I think I saw with one of the gentlemen present a case of double uterus where the suspicion of ectopic gestation existed. In one of Mundé's cases the septum extended to the fundus of the uterus and also to the vaginal entrance. I have referred at another time to a case in which there was no vagina; there was not even a vestibule nor anything except little ridges extending from the perineum up. The woman was brought to me for the purpose of operating for an ovarian tumor. Soon after I discovered that she was pregnant. Upon examining with great care, I found an opening near the urinary meatus which would only admit the point of a Sims probe, and with some difficulty I made sure that it was the entrance to a uterus. I announced to the husband that she was pregnant, but he thought it was impossible, although they had been married nine years. I asked if intercourse had occurred, and he said "no." I then explained to him that she was pregnant and how it might occur. Under an anesthetic I carried a director in and tore and cut some fibres and secured a very satisfactory vagina, which revealed the os in its normal condition, and when I touched it it manifested the conformation and softness characteristic of a pregnancy at five and a half months. The patient went home and was delivered of a perfectly healthy child, without any serious difficulty, at term. The interesting feature in that case is that it was congenital. and not the result of inflammatory adhesions and occlusion of the vagina. The

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vagina went up to within one-eighth of an inch of the uterus, and there was a little pocket. The vagina was not larger than the urethra in any of its course. Nevertheless pregnancy occurred, showing, as has been shown so often, that pregnancy may occur under extreme difficulties.

DR. GILLESPIE.—I had a case in November, 1891, of retained menstrual fluid from imperforate hymen that is recalled by the cases reported this evening. The patient was 19 years of age, married in the February preceding. Her mother had called on me a few weeks before her marriage, stating that her daughter had never menstruated and asking if that would be a bar to matrimony. I asked if she was thoroughly developed, and her mother said her daughter was as well developed as any of her other girls, all of whom seemed perfectly healthy. I said I thought it would be no bar to matrimony. Some time afterward I learned intercourse had been unsatisfactory, that it was impossible for the husband to effect an entrance, and that she was beginning to suffer. Previous to marriage she had no tendency to menstruation; but after marriage the attempts at intercourse seemed to have excited the genital apparatus, and when I examined her I found the uterus about level with the umbilicus. Protruding from the vagina was a mass about the size of the larger end of a turkey egg. It did not seem to be a real hymen, but the centre of it seemed to be connective tissue. I suppose there had been inflammation there when she was a child. The patient was put under an anesthetic, the scar tissue cut away, and several pints of a liquid, about the consistence of tar and the color of chocolate, came away. Then the vaginal vault seemed to be about the size of a woman after full term. One of the interesting features was the presence of numerous little puckered scars around the hymen, where attempts at intercourse had torn the edges but not the centre of the diaphragm. Without my knowledge she got out of bed in a few days and came some distance to my office and asked if she could ride some miles home. I let her go home, and about eleven months afterward she was delivered of a healthy child.

DR. AMBROSE JOHNSTON.—I would like to say a word in regard to the case in which a ureter was injured. I believe in cases of this kind. Where there is no indication whatever of a vagina, and where you have no indications of retained menstrual fluid, it would be well not to interfere with the patient at all, for what good would an artificial vagina do if there is no menstrual secretion thrown out from the uterus? If the uterus was normal and secreting it would increase in size to such a degree that a bimanual examination would eventually reveal the enlargement. Then, if a great part of the vagina is occluded, it would be better to remove the uterus and adnexa.

DR. WITHROW.—In reference to the criticism of Dr. Johnston: Holding the postmortem on my experience in that case, I certainly should not operate upon that case again. But if you will recall the clinical history as given, this patient was having

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distinct evidences of distress monthly, indicating that there was an active apparatus somewhere about the genital organism. You will also remember that examination per rectum disclosed a body larger than an ordinary uterus. It was the fact the patient was having these attacks of heightened blood pressure and the fact the mother was afraid she would go crazy, combined with the mental hebetude, that led to this very unfortunate investigation. It seems to me, with the light of this case before me, I would endeavor to be very much surer that the body felt was the uterus.

DR. REAMY.—Would you make an abdominal section in such a case in the future?

DR. WITHROW.—With the light of six years of experience in that direction, if there were the marked evidences of disturbance present in that case I would now make an abdominal section; but that was six years ago, and the operation then and now would be very different.

In the double-vagina case I was, of course, very much surprised to find two vaginas present and that the doctor had tamponed the wrong vagina. The question came into my mind as to whether or not it was wise to cut away this vaginal septum. I, however, did it with the feeling that if she did become pregnant the more roomy vagina made by cutting this septum away would make labor easier; and, further, that the hemorrhage ensuing upon its division at the time of labor would be greater than at the time I examined her. But I must confess I was at a loss to know definitely what was best to do.

MULTILOCULAR FIBROID.

DR. RUFUS B. HALL.—I present this specimen because it has an interesting clinical history. It was removed from an unmarried woman, æt. 40, who had enjoyed good health to about a year ago, when she discovered she had a tumor in her pelvis. She complained of pressure symptoms. Well above the pubic arch we could feel a nodular tumor, and a portion the size of a small cocoanut fitted into the pelvis like a child's head in the second stage of labor. With a little investigation I could outline the uterus, barely a quarter of an inch longer than normal. I could easily arrive at the conclusion then that the mass felt in front was probably another subperitoneal fibroid. The tumor fitted so close in the pelvis that I believed it was in the folds of the broad ligament and the operation would be a very difficult one. The operation, however, proved to be the easiest hysterectomy it has ever been my pleasure to make. When the abdomen was opened the tumor was easily rolled out of the pelvis. Before the operation I put the patient in the knee-elbow position, and, with my fingers in the vagina, it was impossible to move the mass. The patient could only get a movement of the bowels when the stools were fluid The emperature at the highest point was 99.6°, the third day after he operation. The operation was a supravaginal amputation eaving a portion of the cervix.

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DR. WITHROW.—How do you account for the fact that it was difficult or impossible to lift the tumor out of the pelvis previous to the anesthesia, and yet so easy after the patient was anesthetized?

DR. HALL.—After the intra-abdominal pressure was relieved by the incision the mass could be readily pushed out. It was so accurately moulded to the contour of the pelvis that otherwise it could not be moved.

DR. THADDEUS A. REAMY.—This is a beautiful specimen, and the operation has been admirably done. Examining it now, enormous as the dimensions are, it is easy to understand how it could be done, and I have no doubt that in five or six years from now the doctor will enucleate these tumors. Although the specimen is very large, it would have been a case for a brilliant myomectomy, yet I have not a doubt I would not have attempted it If the doctor could have gotten it out there is plenty of peritoneum here that is quite healthy with which to cover the flaps. I do not criticise, for I do not believe I would have done a myomectomy in this instance myself.

DR. CHAUNCEY D. PALMER.—When one studies the specimen it seems to be a forlorn case for myomectomy. Such a procedure would have required a prolonged operation and would have greatly endangered the result. Myomectomy might have been done on the larger or less sessile fibroid, but it is very doubtful whether it could have been done on both.

DR. STARK.—I desire to express my disapproval of the operation of myomectomy. The modification of the Baer operation in suprapubic hysterectomy is really a very simple operation and one which yields ideal results in the hands of experienced operators. When we split open these fibroid uteri we find the uterine wall studded with small myomata, and what reason have we to believe that in time they will not develop into larger tumors? Our attention is only directed to the larger tumors in the operation of myomectomy, and we expose the patient to the dangers of an abdominal section, and probably to as much or greater danger as would be entailed by the suprapubic hysterectomy, and why not do that operation at once? Since the first of January I think I have made fourteen or fifteen supravaginal hysterectomies for fibroids, and all the patients have made prompt and perfect recoveries.

DR. EDWIN RICKETTS.—The buried sutures, that necessarily must come in doing a Baer operation, leave a nidus, and, in many of these cases, as the result of that you have many visits from your patients, and after you have fished out a number of these ligatures you will not think so much of the operation. We cannot draw the line and say we will do a myomectomy or a suprapubic operation as done here by Dr. Hall. There are cases that are to be decided after the abdomen is opened. As to a myomectomy in this particular case, I am of the opinion that Dr. Hall did the right operation here, and I do not believe the time will ever come when, in such a case as this, we would do a myomectomy.

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DR. THADDEUS A. REAMY.—I would like to correct a possible wrong impression which Dr. Ricketts received from what I said. Any operation, whether you call it Baer's, or Baer's modification of some other operation, or some other modification of Baer's operation, does not necessarily leave buried sutures. All the sutures left in the peritoneal cavity may be left, if the silk is sterile, just as safely as if they were catgut. The peritoneal cavity can thoroughly dispose of a sterile silk suture. The sutures that must be buried can be of sterilized catgut. If the sutures are sterile and of catgut, the vessels can be tied as well as with any other ligature. Catgut is just as susceptible, at the present time, of sterilization as any other gut or ligature; so that no man can now be barred from the use of catgut any more than one can doubt that he could live in a field the soil of which was made of garbage and be perfectly secure from danger in these modern times of sanitation. But I did not rise to speak of that. My remarks were not intended as a criticism of Dr. Hall's operation in this particular case, but as we examine this specimen, now reduced in size probably one-third as it is, and out of the uterus and liberated from its normal attachments and not packed down as it was, we can see very easily that a myomectomy could have been done. I have not the slightest idea that I would have done a myomectomy had I been doing the operation, nor have I the slightest doubt but that in five years Dr. Hall, Dr. Ricketts, and myself will be doing myomectomy in such cases.

DR. STANTON.—What advantage would there be in leaving the organ there by a simple myomectomy?

DR. REAMY.—I go on the theory that it is an advantage to leave any organ that we can. The uterus would have been left in as good condition as any uterus. The technique of these operations is being improved and myomectomies are being done in cases in which heretofore it would have been impossible. If these tumors are subserous and you can get plenty of unwounded peritoneal tissue to cover over the uterus, it is of little consequence how large a tumor is removed by myomectomy. After you get the tumor out and examine it, in Dr. Hall's case, we know it would have been a brilliant case for myomectomy.

DR. HALL.—Would you please make yourself a little plainer, doctor? Do you use silk for the ovarian artery and then for the uterine artery?

DR. REAMY.—I use silk very often all through and sometimes I use silk and catgut. I do not remember now that I ever had any trouble with a silk ligature with which I had tied the ovarian artery.

DR. HALL.—You never will.

DR. JOHNSTON.—The design of a myomectomy is to both make an easy operation and to preserve the uterus with its functions, which in this case cannot well be attained. With this specimen before us it is difficult to determine what is uterus and what is tumor. On both sides of the uterus are

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nodules which are so intimately associated with the Fallopian tubes that they could not be removed without injuring the Fallopian tubes to such a degree as to destroy their function.

DR. GILES S. MITCHELL.—At the last meeting of the American Medical Association I had the good fortune to hear that prince of abdominal surgeons, Howard Kelly, read a paper on myomectomy. He related in his paper one or more cases where he had removed as many as fourteen growths from the uterus; indeed, to use his own language, scarcely any of the anterior uterine wall was left. It is hardly necessary for me to state that his paper was severely criticised. Myomectomy, within certain limits, is not only justifiable but is to be preferred. Kelly, however, has reduced it to the absurd. Myomectomy, even in suitable cases, is a much more difficult and dangerous operation than hysterectomy. The latter operation ordinarily is not difficult and the mortality is low. Granting that an operator as skilful as Kelly might be able to remove a dozen fibroids from a uterus and the patient survive, what possible service could an organ so mutilated render? During the past year I have made eight hysterectomies after the method of Baer, and have had no trouble following the employment of silk ligatures Like Prof. Reamy, I believe silk is the safest ligature for this kind of work, and, if it is not too large and is thoroughly sterilized, in time it is disposed of.

DR. RUFUS B. HALL (in closing) —There are several things to take into consideration when we think of making a myomectomy, as has been indicated by some of the speakers tonight. One important consideration is the age of the patient; next is the number and location of the tumors. Now, as to the age of the patient. If the woman is 40 years old or older and unmarried, or has no prospects of an immediate marriage, it matters not a particle to her whether she has her uterus or not. If the patient were a married woman or under 30 and the tumors subperitoneal, with no indication of other fibroid tissue in the uterus itself, and she were anxious to bear children, and were made aware of the increased danger in the operation of myomectomy and desired a myomectomy, then we should consider that operation. But if the woman was 40 years old and was not particularly anxious to bear children, and the mortality greater in myomectomy than in hysterectomy, she should be given the best chance for her life. Few women who do not bear children under 40 years of age bear children after, even with a healthy uterus. I do not believe the day will ever come that any man at the operating table would make a myomectomy in such a case as this. I do not believe that day is here nor within five nor twenty-five years of us. In such a case as this there would be no peritoneum adherent to the uterus when you got through, and then you probably would have a few fibromata left in the body of the uterus. But that would matter little, for the patient would almost certainly die. I am not going to discuss the subject of ligatures in this case, further than to say that a recent discussion in the

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Southern Surgical and Gynecological Association in St. Louis brought out a very important point which was overlooked by one of the speakers this evening; that is, the sterile catgut, that is absolutely sterile in the culture tube, is capable in the body of forming what they describe as a chemical sepsis. Nature is not able to care for the catgut in all instances, and an abscess forms about the catgut in which the pus has no infecting germs. This they call a chemical process of suppuration. After all, we cannot sterilize the catgut from the surgical standpoint. Dr. Kelly said in Washington that the mortality must always be very much greater in myomectomy than in hysterectomy, and I think if we emphasize that fact we are correct.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Abortion.—N. T. B. Nobles[1] reports two cases of abortion in which the placenta was retained for a long time. In one case the placenta was removed at the end of three weeks, and in the other case at the end of one hundred and twenty-five days.

The Early Signs of Conception.—W. G. Brown[2] states that those signs which occur during the first three months may be called early. They are: (1) cessation of the menses; (2) nausea and vomiting; (3) coloration of the vagina; (4) changes in the breasts; (5) Hegar's sign; (6) enlargement of the corpus uteri. He attaches more importance to the last sign than to any other. Next in value in primiparæ are the breast signs; these signs he believes to be almost certain indications of pregnancy.

Cardiac Disease and Pregnancy.—J. Lvoff[3] considers interruption of pregnancy necessary in cases of cardiac disease only when compensation is disturbed. In other instances careful attention to the second half of pregnancy and to labor and the puerperium gives satisfactory results. If cardiac disease is noted during pregnancy, a milk diet, rest before and after labor, and cardiac tonics will usually carry the patient safely to term. In disease of the mitral valve, however, the heart is most apt to fail during the second stage. The membranes should be ruptured in order to diminish intra-abdominal pressure, and labor should be completed either by uterine contractions or external pressure, avoiding entirely the action of abdominal pressure. In cases of aortic disease the dangerous period is just after delivery, when the circulatory conditions have been altered, and cardiac stimulants should be employed at this time as the character of the heart's action may indicate. The heart must be closely watched for some time, frequently for several days.

Vomiting of Pregnancy.—J. Geoffroy[4] believes that the

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nausea and vomiting of pregnancy are due to a reflex contraction of the alimentary canal, which is localized especially at the pylorus and at different portions of the duodenum, but especially and primarily at the sigmoid flexure of the colon. He further believes that the painful contraction of this portion of the colon is the pathognomonic sign of a reflex hyperesthesia of the intestinal canal. For the severe vomiting which results he advocates the use of massage, which he claims will afford relief. In support of this view he reports a number of cases.

Management of Pregnancy.—E. E. Harvey[5] advises the administration of sodium bromide with the fluid extract of hydrastis canadensis when there are uterine pains arising from old metritis or parametritis. When women suffering from endocervicitis become pregnant they may be depleted by glycerin tampons introduced up to the cervix. Use a blunt curette gently and swab out the cervix for a short distance with iodine and carbolic acid. Never employ a douche, as it may bring on an abortion. In some cases where there are pains resulting from old inflammations, the pains being neuralgic in character, and in weak and hypersensitive women, he gives a compound of the fluid extract of helonias mitchella repens, viburnum opulus, and caulophyllum. When the stretching of the abdominal wall causes pain he applies a liniment of aconite, belladonna, opium, and camphor. A hot-water bag will give equally good results. For restlessness he advises outdoor exercise, plenty of fresh air, and good nourishing food, avoiding too much meat and rich food. One-half hour before bedtime he advocates the giving of from ten to fifteen grains of sulfonal. The powder should be dissolved in a little hot water and given in half a cup of hot milk.

Osteomalacia.—This disease is much more frequent than is usually believed. Moist and unsanitary dwellings are the most important etiological factors. As to therapeutics, Latzko[6] advises continuous administration of phosphorus. Castration is indicated if the phosphorus administration proves of no benefit or quickly succeeding pregnancies counteract its beneficent effects. Pregnancy should be interrupted, irrespective of pelvic contraction.

Retraction of the Uterus.—Demelin[7] states that without the administration of ergot pathological retraction of the uterus may occur (1) at the time of delivery, imprisoning the placenta, the retraction involving the ring of Bandl or the entire uterus; (2) when the fetus is still within the uterus, but after rupture of the membranes, the whole or a part of the fetus being above the ring of Bandl; (3) before rupture of the membranes. Demelin publishes three cases of the last class. In explanation of their occurrence he says that during labor a retraction ring is normally formed, but that simultaneous contraction of the lower segment prevents it from rising upward or closing its orifice, and the position of flexion of the fetal head causes the bisacromial diameter to pass through immediately after the long diameter of the head. In this way the ring is unable to

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close down upon the neck of the fetus. If the head is high up, however, and flexion is imperfect, the conditions are reversed and the neck may become imprisoned. This may occur with a slightly deformed pelvis, preventing early engagement, with a head in unstable equilibrium between flexion and extension, and with a posterior position. Such cases are best treated by rupturing the membranes as soon as dilatation of the external os is complete. Temporizing allows an increase of the retraction, and as the pains are not expulsive the entire uterine wall above becomes tightly contracted around the child.

Puerperal Sepsis.—J. Rosenberg[1] believes puerperal infection to be absolutely avoidable if the vaginal examinations are restricted, if the external genitals are thoroughly disinfected, and if the hands of the examiner are in an aseptic condition.

H. D. Fry states that puerperal fever, in the majority of cases, develops from the third to the fifth day after childbirth. In the mild form the germ does not penetrate into the living tissue, but produces putrefactive changes in foreign matter retained in utero. Ptomaines are generated and absorbed into the blood. The lochial discharge has the disagreeable odor indicative of putrefaction. Recovery usually takes place in eight or ten days. In the severe form the germ, more often representing streptococcus infection, invades the maternal system. The skin presents a sallow hue, the breath has a sweetish odor, the mind is dull, and a typhoid condition develops. The lochial discharge has no disagreeable odor. Lacerations of the perineum or vulvar opening present an unhealthy appearance, and the uterus is enlarged and sensitive. A safe rule is to consider all cases of fever occurring soon after childbirth as septic in nature and treat them accordingly. The history of the labor may shed some light on the subject and aid a diagnosis, as will a rapid pulse and marked depression.

Important evidence is gained by local examination. Swelling of the tissues of the vaginal orifice, puerperal ulcers and unhealthy appearance of perineal tears, inflammation of the vagina with thin discharge, soft, edematous cervix enlarged and ulcerated, a patulous cervical canal, an enlarged and tender uterus, scanty or suppressed lochia with or without odor, marked abdominal tenderness, tympanitic distension, fixation of the uterus, and inflammatory exudations in the broad ligament, indicate an extension of the disease to the adnexa and peritoneum. Bacteriological examination of the uterine secretions gives conclusive evidence of infection and of what variety it is. Constipation or an overloaded stomach may simulate a beginning septic fever. In making a differential diagnosis two points should be kept in mind, viz.: the facial expression, which in puerperal fever is generally pinched and anxious; and the rapidity of the pulse, which may go as high as 120 with a temperature of 101°.

A. F. A. King,[2] in treating puerperal sepsis, supports the strength of the patient by food and stimulants. Of foods he believes milk, meat juices and extracts are the best. Of stim-

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ulants, whiskey or any other liquor of good quality can be given at short intervals as long as the pulse is frequent and feeble. He irrigates the genital canal with an antiseptic solution and removes the decomposing matter by a finger or curette. He believes antiseptic irrigation to be absolutely necessary in all cases, but curetting in uterine phlebitis, in which the veins are plugged with infected clots, should not be done. When fever is caused by the streptococcus he administers hypodermatically doses of antistreptococcic serum ranging from ten to forty cubic centimetres. This, he believes, should be given early in the case and in full doses every twenty-four hours. In puerperal metritis where the tissues are deeply involved with suppurating foci he advises hysterectomy.

O. Beven [10] reports a case of puerperal fever which he believes to be due to the organisms of distemper. The patient's husband was in charge of a kennel where there were several dogs ill with distemper, which required a great deal of his attention. No other cause of infection could be found.

Twenty-one cases of puerperal infection after delivery at term are reported by Doléris [7] as treated by curettage, with no mortality, all being completely cured. He advises that no chloroform should be used in the operation; that the cervix should be stretched with graduated dilators under the careful guidance of palpation; and that curettage be performed with a large, sharp ring curette having a large curvature, controlling the uterus with the other hand upon the abdomen. After free uterine irrigation antiseptic gauze packing is to be introduced. The treatment is followed, in case of the existence of ectropion, laceration of the cervix, salpingo-ovaritis, etc., by measures appropriate to these conditions.

L. B. Clark [11] reports two cases of puerperal sepsis in which antistreptococcic serum was used. In one case two 20-cubic-centimetre injections were given, twenty-four hours apart. These resulted in the temperature falling to normal at the end of thirty-six hours from the first injection. In the second case the patient had diphtheria. She was given two injections of 40 cubic centimetres of a double antidiphtheritic and antistreptococcic serum. The temperature fell slightly at the end of the second day, but subsequently went up. Local treatment was tried and patient recovered.

Puerperal Eclampsia.—D. A. Stanton [12] has used the tincture of veratrum viride in the treatment of puerperal eclampsia, with good results. The patient, if kept in the recumbent position, may take from 20 to 30 minims hypodermatically without danger.

J. Gordon [13] gave a 5-minim hypodermatic injection of the fluid extract of veratrum viride in a case of puerperal eclampsia, with good results.

Retroversion and Incarceration of the Pregnant Uterus.—France [14] reports the case from the University Clinic of Halle of a girl, 18 years old, who entered the clinic stating that she had always been healthy, but of late suffered with incontinence

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of urine and swelling of the legs. The abdomen was distended and painful. Labor pains were present, and during the pains the vulva and anus were distended. The vagina was occupied by a tumor and barely admitted the finger. Above the symphysis the feet and breech were felt. The cervix and os could not be found. The case was diagnosed as pregnancy of the seventh month complicated by a tumor, probably a dermoid, located in Douglas' pouch and obstructing the pelvis. Fetal heart sounds were not heard. Under chloroform anesthesia an attempt was made to push the tumor out of the pelvis. Not being successful, it was punctured with a trocar. A whitish, grumous liquid was brought to light, which was thought to originate from a dermoid. After this laparatomy was decided upon, and it was then found that the presumed tumor was nothing else but the incarcerated pregnant uterus. The dead child was extracted by the feet, and an opening behind the ear showed where the trocar had entered and that the whitish material was fetal brain matter. The uterine opening was closed by sutures. The woman recovered.

A New Method of Inducing Premature Labor by Means of Glycerin.—Pelzer's[15] method of inducing premature labor by injecting glycerin between the uterine walls and fetal membranes was found to be very efficient, but also dangerous, as complications from an acute degeneration of the kidneys and destruction of the red blood corpuscles have followed its employment. Saft[15] describes a new method, for which he claims all the advantages of Pelzer's method without the accompanying dangers. A condom of animal membrane, which must be impervious to water, is introduced into the cervix, and by means of a hollow bougie is distended with pure glycerin. This method is said to be very effective and free from danger. In one case only was a slight albuminuria observed. (The reviewer has employed this method for the last five years and can vouch for its efficiency and harmlessness.)

Hydatidiform Mole.—Keiffer[16] suggests that endothelial proliferation leading to vascular occlusion in the chorion may be the direct cause of the myxomatous degeneration of the chorionic villi. He advances the idea that this vascular lesion is due to the administration of drugs possessing emmenagogue qualities, such as apiol, piscidia, and viburnum. A case is reported in which such drugs were employed and a hydatidiform mole was subsequently expelled. In discussing this paper Jacobs holds that the relative rarity of these moles when emmenagogues are so freely employed is a strong argument against the inference drawn by the writer.

R. A. Murray[64] states that a patient having all the manifestations of early pregnancy, with rapid growth of uterus beyond the size of the presumable time of pregnancy, with bloody or serous discharges and a broadened, flattened uterus which is smooth and boggy to the touch bimanually, absence of the hard fetal parts, ballottement, sounds of fetal heart and movement, there is a strong probability that there is

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cystic degeneration of the chorion; this cannot, however, be made positive till some of the vesicles come away. From cases which have come under his observation he has deduced the following points: That women near the menopause who are irregular in menses should always be examined to determine the cause; that the possibility of hydatidiform mole being a cause of metrorrhagia and serous discharge should always be borne in mind; that fibroids of the uterus may be present, yet the cause of flow may be a hydatidiform mole; that a hydatidiform mole may be present without obvious signs of pregnancy; that the proper treatment of this condition is dilatation of the uterus, removing the mass and packing the uterus, to be followed by ergot to keep the uterus contracted, all operations to be done aseptically and with all means of controlling hemorrhage at hand.

Rhino-cyclocephalic Monster.—Tonglet and Keiffer[17] enrich the literature of maternal impressions by reporting a case in which the woman gave birth to a rhino-cyclocephalic monster. In the early part of this pregnancy she had been deeply impressed by the sight of some negroes who possessed frontal appendages, a tribal deformity. Her first child had had a number of nevi. During her third pregnancy her dog was constantly licking its external genitals, which were the site of some lesion, and in order to prevent an influence upon the child in utero the animal was removed. The child was born at term and showed several nevi upon the face and scalp and a hypospadias.

Triplets.—J. T. Melvin[18] reports a case of triplets. They are all alive, and the mother furnishes an abundant quantity of milk for all.

Cesarean Section.—A case of conservative Cesarean section with the transverse incision after Fritsch is reported by Hain,[19] who praises this method highly. Its advantages are the rapid diminution of the uterine wound, so that only seven sutures suffice for its closure; a perfect view of the interior of the uterus, and greater ease in the delivery of the child. The case terminated favorably for both mother and child.

F. E. Fronczak[21] removed a living child from the uterus of its dead mother by Cesarean section. The child lived only a very short time.

Madlener[14] reports two cases. The first was a primipara 30 years old with a normal pelvis. The child presented by the face; attempts at version and delivery with the forceps had been unsuccessful. The uterus was painful. The contraction ring was quite prominent. Conservative Cesarean section was performed and an anencephalous fetus delivered. The second case was a Porro operation with extirpation of ovaries and tubes. Osteomalacic pelvis prevented delivery, even after perforation. Upon opening the uterus the organ was found to contain two children, both females, which were delivered alive, but perished eight weeks later from gastro-enteritis. The convalescence was uninterrupted. The osteomalacia improved

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so much that the woman, who formerly was almost helpless, could attend to her household duties.

Kefting[20] reports a case of Cesarean section which was performed on account of eclampsia. The woman was a primipara with marked edema and albuminous urine. She had frequent eclamptic attacks with absence of labor pains, and was in a deeply comatose condition. The operation was performed under chloroform anesthesia; a living child was delivered. After the operation the attacks did not recur, and consciousness returned two days later. The albumin disappeared, the woman made a perfect recovery and has since then been normally delivered.

Cesarean Section and the Porro Operation.—J. H. Carstens[21] suggests the following rules for cases demanding Cesarean section: 1. If operated upon in private houses, with facilities and by experienced surgeons, the Porro operation should be employed, using the clamp method. 2. Cases of deformed pelvis which may require a similar operation in the future should be subjected to the Porro operation, even if in a well-equipped hospital, unless the patient decides otherwise. 3. Cases requiring abdominal section on account of removable tumors only, should be treated by Cesarean section if the operation can be performed in a hospital or in a private house where proper facilities can be obtained. 4. Cesarean section should also be performed in any case when desired by the patient.

Vaginal Hysterectomy for Cancer of the Uterus at Full Term.—Fritsch.[22] After rapid dilatations of the cervix by means of deep incisions, the child was delivered with forceps. Vaginal hysterectomy was performed immediately after this. The woman left the hospital four weeks later; the disease had not recurred after three months. Fritsch advises against the Porro operation or conservative Cesarean section in cancer of the uterus, and also believes that in rupture of the uterus vaginal hysterectomy is the most rational operation.

Mittermaier[23] reports two cases of cancer of the uterus complicated by pregnancy, both treated by vaginal hysterectomy. In the first case pregnancy had existed for six months, and the uterus was removed after a preceding spontaneous miscarriage. In the second case a living seven-months fetus was delivered per vaginam; after this, removal of the uterus. Mittermaier remarks that the ease with which the uterus could be pulled down and extirpated was really astonishing.

GYNECOLOGY AND ABDOMINAL SURGERY.

Perforation of the Uterus.—S. Frederiq[24] believes that pseudo-perforations of the uterus may occur during curettage for incomplete abortion. After removal of the débris the uterus regains its tonicity and the localized areas of extreme distensibility disappear. The writer has had occasion to perform a hysterectomy upon a patient whose uterus had apparently been perforated during a previous curettage, and the uterine

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muscle was found uninjured. In connection with a case in which perforation of the uterus actually occurred during its dilatation, as shown by the entrance of the bichloride douche into the peritoneal cavity, he advises caution in case of deep laceration of the cervix caused by dilatation, and abstinence from the use of the intrauterine douche when even a pseudo-perforation is suspected. If the douche is employed it should be left in place for several minutes after the inward flow of water has been checked. In the author's case this precaution allowed the bichloride solution to flow out from the abdominal cavity, and the patient eventually recovered after symptoms of mercurial poisoning and peritonitis. Subsequent dressings should be delayed several days and then be performed only when absolutely indicated.

Rupture of the Uterus.—J. B. De Lee[44] reports a case of spontaneous rupture of the uterus during labor. The tear was situated on the anterior wall of the uterus at the junction of the cervix with the vagina. He performed laparatomy, removing the uterus and closing the vaginal roof with two layers of sutures.

H. S. Crossen[45] records a remarkable case where the uterus was ruptured when two and a half months pregnant by a fall and blow over the abdomen. This was followed by abortion and the descent into and out of the vagina of a large portion of the small intestine. She arrived at the hospital twelve hours after the intestine was discovered.

On examination it was found that the intestine protruded from the uterus and that the portion of intestine outside the body was stripped of mesentery and consequently was without blood supply. Crossen then opened the abdomen. The peritoneal cavity contained blood, both free and clotted. The tear in the uterus was low in the anterior wall. Of the mesentery which had been torn from the intestine, a portion was in the peritoneal cavity and another portion was wedged firmly into the uterine tear. The free edge of the mesentery was ragged and black from hemorrhage. All that part of the intestine from which the mesentery had been torn was removed and an end to end anastomosis made. The rent in the uterus, which was transverse and appeared to be about one and a half inches long, was sutured in the usual manner. The long stretch of mesentery was ligated with silk ligatures and the bruised, ragged portion cut off. The abdominal cavity was then washed out, a gauze drain passed to the anterior surface of the uterus and a glass drain into the posterior cul-de-sac, and the abdominal incision closed. The portion of small intestine which it was found necessary to remove measured, when fresh, fourteen feet. After being in alcohol for several days it measured thirteen feet and five inches. The patient was very weak after the operation and continued so the remainder of the night. The next day, however, she became much stronger, and after that, though there was considerable fever all the time, the progress of the case was surprisingly favorable for three days

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—several bowel movements being obtained and the patient having no pain. Later well-marked symptoms of peritonitis appeared, and the patient died on the sixth day following the injury.

Postmortem examination revealed general peritonitis; sloughing of part of the mesentery beyond the ligatures; intestinal wall, at site of anastomosis, intact; infection of the endometrium and of the uterine wound. There was no leakage from the sutured intestine. It had been closed with one row of interrupted sutures and two rows of continuous Lembert sutures. Water was run through it without leakage. There was sloughing of the stump of the mesentery, due to the cutting off of the blood supply of the stump by the ligature. In an ordinary case of resection the separate vessels can be caught and tied, but to attempt to catch separately each of the vessels along an eight- or ten-foot line of spurting arteries would be folly. It would take far more time than could be spared where the patient is so weak and there is so much other work to be done. Why should the stump in this case slough when the stump following ovariotomy does not slough, ordinarily? The constriction of the vessels is certainly as complete in the one as in the other. The rent was through the lower portion of the anterior uterine wall, and there was a suspicion that it was made instrumentally. This, however. was practically excluded by the evidence and circumstances of the case. Dr. Carl Fischer, who examined the uterus, reported as follows:

"The microscopic examination of a piece of tissue excised at the site of rupture and extending through the whole thickness of the uterine wall gave the following results: There was directly following the line of rupture a zone of fatty degeneration and granular disintegration, which, centrifugally, was bordered by a zone of round-cell infiltration. The area beyond and around this inflammatory deposit was distinguished by a very marked sclerosis of the walls of the larger and smaller vessels, in many places reaching perfect obliteration. The character of this arterio-sclerosis was decidedly syphilitic, though in the absence of other histologic changes peculiar to this disease I would not like to be positive about this point. However, the vascular changes appear to have been such as to seriously interfere with the vitality of the tissues around the point of rupture, and, in my opinion, this arterio-sclerosis was of such a degree as to be able to produce in a uterus in the third month of pregnancy a spontaneous abortion and rupture."

Gonorrhea.—In view of the rapid absorption of essence of wintergreen by the unbroken skin and the antiseptic action of its analogue, salicylic acid, F. Jouin[**] has been led to use this drug in the treatment of gonorrheal endometritis and salpingitis. He reports successful results in the six cases in which it was employed. A mixture of alcohol and essence of wintergreen is applied to the uterus and the orifice of the urethra, and, in cases of salpingitis, to the vaginal fornices, through

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which Jouin believes it capable of penetrating to the tubes. Applications are made twice a week, rapidly increasing in strength until pure essence of wintergreen is employed. In urgent cases the treatment may be used even daily.

After describing the treatment of the acute stage of gonorrhea, J. H. Dowd[11] advocates curettage of the uterus and cervix as a routine measure when the inflammation has involved any portion of the genital tract above the hymen. This should be done at about the twelfth or fifteenth day from the time of infection, when the discharge has become thicker and of diminished quantity. The curettage must be preceded by dilatation of the cervix to three-quarters of an inch, and followed by irrigation with 1:5000 bichloride, swabbing with forty to fifty per cent nitrate of silver, and packing with iodoform gauze for forty-eight hours. Hot douches are used while the slough separates, and subsequently local applications of iodine and ichthyol to diminish the discharge.

The Existence and Therapy of Chronic Gonorrhea.—The disease has its seat in the posterior and lower third of the vagina, from where infection constantly recurs, the subepithelial tissues not being accessible to the customary methods of treatment. Bodenstein[12] recommends cotton tampons saturated with ten per cent solution of ichthyol. This increases the softness of the mucous membrane, after which applications with ten per cent nitrate of silver are very effective. Vaginal douches become more effectual by a distension of the vagina with air.

Rectal Gonorrhea in the Female.—Baer's[13] investigations confirm the statement of Jullien that the invasion of the rectum by gonococci is quite frequent. In many cases gonorrhea of the rectum is not accompanied by pronounced symptoms and is therefore apt to be overlooked. In 429 women afflicted with gonorrhea the rectum was involved in 32, 8 per cent. The main sources of infection are coitus per anum, and the contamination with infectious vaginal secretion through lack of cleanliness. In uncomplicated cases local treatment with a 2 to 5 per cent solution of silver nitrate or argentannin was found to be very efficient, but if fissures or ulcerative processes of the rectal mucous membrane are present milder remedies are advisable.

Surgery of the Endometrium and the Cervix Uteri.—W. H. Wathen,[1] in operating for laceration of the cervix, first scrubs out the vagina with hot water and soap, then he curettes and cleanses the uterus and denudes the lacerated surfaces, and finally places the sutures. He believes the continuous sutures to be the best. The pressure of the sutures should be evenly distributed, and the surfaces of the laceration held in apposition, care being taken not to draw the stitches too tightly or there will be tissue necrosis. In curetting or in operating for cervix lacerations he uses one or two fingers as a retractor. He states that curetting is contraindicated in puerperal infec-

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tion caused by germs of suppuration; in these cases he uses an intrauterine irrigation of hot water or a 1:10000 solution of bichloride.

Bacteriological Examination of the Uterus.—Opitz[13] examined 10 extirpated uteri after the method of Menge, and confirmed the latter's statements of the sterility of the uterine secretion. In nine cases the secretion of the corpus was found sterile in spite of an ulcerative carcinomatous process, bleeding, and endometritis. In only one case did the cervix contain bacteria, and in this case the mucous membrane had undergone carcinomatous changes. These investigations do not explain why operations for cancer of the uterus are more easily followed by infection, except that many of these cases are in a cachectic condition.

Bacteriology of Chronic Endometritis.—J. P. Warbasse[14] examined 17 cases of chronic hypertrophic endometritis for bacteria. In all of these cases a bit of mucosa was scraped from the fundus of the uterus by a small sharp curette passed up through the tube of a urethral endoscope. This bit of tissue, with a small amount of blood and mucus, was introduced into a tube of warm beef bouillon-gelatin, slightly agitated, and poured out into Petri dishes. Twelve gave no growth; one showed a pure culture of staphylococcus pyogenes aureus; another showed the same coccus with an organism resembling proteus vulgaris; a third showed bacteria ureæ, and the remaining two showed staphylococcus pyogenes albus. In none of the sowings did a growth spring from the threads of tissue. He believes these organisms do not bear any etiological relation to chronic endometritis.

Uterine Hemorrhage.—Kalenscher[15] praises highly the effectiveness of liquor alum. acet. in the treatment of uterine hemorrhage. He injects about 150 grammes, and says that this remedy never failed to stop even the most obstinate bleeding.

Laceration of the Perineal Body.—T. Frank[16] states that in repairing median tears of the perineum all scar tissue should be removed; that the mucous surfaces should be united, care being taken to avoid any pocketing, and that the sutures should be passed well out and under the raw areas. For repairing lateral tears he believes the Emmet operation to be the best. He advocates the immediate repair of lateral tears, as they may cause subinvolution of the vagina and uterus, rectocele, cystocele, or even uterine prolapse.

Perineal Lacerations and the Neurasthenic State.—J. H. Etheridge[17] declares that in a large number of cases in which a perineal laceration and the neurasthenic state exist they may occupy the relation of cause and effect. The lacerations he refers to are those that leave none or only a small portion of the body of the perineum. These, he believes, are too often overlooked or ignored, especially in neurasthenic women. He states that the varicose condition of the patient's vaginal and rectal plexuses arising from perineal tears is decided and often

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destructive to her nervous system. He reports three cases of neurasthenic women who had tears of the perineal body. After the tears were treated surgically the nervous symptoms rapidly disappeared and the patients recovered their former good health.

Cancer of the Uterus.—Jacobs[10] is convinced that vaginal hysterectomy cannot cure cancer of the uterus, and that it should be considered only as a palliative operation, to be classed with curettage, cauterization of the affected tissue, and amputation of the cervix. Abdominal hysterectomy, on the contrary. if performed early, promises a more radical cure. It includes removal of the uterus and appendages, free resection of the vagina, and cleaning out of the broad ligaments. In another paper Jacobs[11] reports three cases showing the advantage which the abdominal route possesses. In one of these an involvement of one of the iliac lymphatic glands was found, and in another it was necessary to resect a portion of the small intestine which contained carcinomatous nodules.

J. M. Fisher[12] states that cancer of the uterus is at first a local disease, and in this stage is amenable to radical surgical treatment. He thinks that in ninety per cent of the cases the physician can readily make the diagnosis at the time the patient first presents herself. He gives the symptoms, in order of their importance, as follows: hemorrhage, offensive discharges, and pain. He believes the presence of one or more of these symptoms, especially in a woman of advanced years, should induce the physician to insist upon a local examination.

C. L. Hall[13] believes that vaginal hysterectomy for malignant disease is applicable only to those cases which are seen in the early stages before secondary infection has occurred. He favors the abdominal route as furnishing the best opportunity for inspection of the diseased uterus, adnexa, and infected glands, and allowing a more complete removal of the affected structures, both primary and secondary.

Findley[14] advises an early microscopic examination. If the suspected tissue is in the cervix a wedge-shaped piece should be cut out and examined; if higher up, scrapings must suffice. For examination use either the celloidin embedding method or Dr. Cullen's freezing method. In the former the tissues are washed free from blood, placed in a four per cent formalin solution for twenty-four hours, then in fifty per cent alcohol for twenty-four hours, next in seventy per cent alcohol for twenty-four hours, and finally are hardened in absolute alcohol; they are then transferred to a dilute solution of celloidin for twenty-four hours. and lastly to thick celloidin for twelve hours. After mounting on cork, sections are cut and exposed to the air for a few minutes. then immersed in seventy per cent alcohol for a few hours, and stained with eosin and hematoxylin. In the freezing method, (*a*) cut tissues with a freezing microtome, (*b*) fix in four per cent formalin solution three to five minutes, (*c*) absolute alcohol one minute, (*d*) stain and

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mount. This does not yield as satisfactory results as the slower method.

Backer.[79] During the last thirteen years 705 cases of cancer of the uterus were observed in the First Gynecological Clinic in Budapest. This constitutes about 6 per cent of all gynecological cases. The largest number occurred between the ages of 36 and 50 years; during the years of full sexual activity (21 to 45), 62, 40 per cent; during the climacterium (46 to 55), 28 per cent, after that 10 per cent. Thus the disease is more frequent near the time of the menopause. Lacerations of the cervix appear not to predispose to the disease, but the author believes that gestation produces certain changes in the uterine mucous membrane favoring the development of malignant growths. Backer's investigations show that endometritis is often followed by cancer of the uterus. Gonorrhea, syphilis, and tuberculosis have no etiological bearing. About 10 per cent of the cases seen were suitable for operation; this percentage, however, has increased during later years. In 69 cases vaginal hysterectomy was performed, with a mortality of 11, 6 per cent. In a number of cases the disease did not recur after 5, 6, 7, and 10 years. The author does not favor the employment of clamps, but prefers ligatures with fixation of the stumps in the angle of the wound and immediate closure of the peritoneal cavity. Wherever possible the adnexa are removed. It hardly needs to be stated that, on account of the great liability to recurrence, high amputation is condemned.

A new operative method for cancer of the uterus is described by Riess,[80] of Chicago, the important point of which is the thorough removal of the iliac lymphatics. He reports two new cases which demonstrate the advantages of this operation. A similar operation has been recommended by Rumpf, Freund, and Clark, but as Riess published his first operation about two years ago he certainly deserves the right of priority.

Hematometra.—Forges[81] describes a case of cancer of the cervix in a woman 60 years old, in which the external os was closed and the uterus distended by a large quantity of dark, semi-fluid blood. The uterus was removed through the vagina. The patient recovered.

Cancer of the Clitoris.—Lovrich[82] observed one of these rare cases in a woman 56 years old. The patient noticed for about a year a swelling and an induration of the labia. The tumor, about the size of a hen's egg, proved to be a true epithelioma.

Deciduoma Malignum.—Prochownick[83] read a paper with the above title at the January meeting of the Hamburg Medical Society. The author states that the patient's life can be saved only if an early microscopical diagnosis is made. A permanent cure cannot be expected if the diagnosis is made after the appearance of pronounced clinical symptoms. The early microscopical diagnosis is even more important in deciduoma malignum than in cancer of the uterus. Every case of hydatid mole should be carefully examined and kept under

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observation, even if the first examination gives no evidence of malignant degeneration. Cases of miscarriage followed by irregular bleeding, in spite of thorough curetting of the uterus, should be looked upon with suspicion and carefully investigated.

Syncytioma Malignum.—Gebhard [14] reports 3 cases of malignant tumors of the chorion originating from the epithelium of the villi. Both the syncytium and Langhans' layer contributed to the structure of the tumor. Gebhard coincides with Marchand that the protoplasm arises from the syncytial covering of the villi, while Langhans' layer contributes the cell element. These new investigations again confirm his theory of the uterine epithelium changing into syncytium of malignant character. Gebhard states that the diagnosis of malignant syncytioma is not easy, and that during pregnancy true carcinoma is often met with, resembling syncytioma, which has no relation to this disease.

Uterine Fibroids.—Rouffart [15] describes a successful anterior median vaginal hysterectomy for morcellation of a uterine fibroid. He favors this procedure as permitting the removal of the growth in many cases, while if the tumor is found not to be amenable to this treatment for any reason, it may be employed as the first step of a hysterectomy.

Delaunay [16] describes a case of uterine fibroid with torsion of the pedicle. Menstruation had been irregular for eleven months, and the last menstrual period had been quite painful. Examination three weeks later showed the presence of a tumor about ten inches in diameter. At the time of its removal the pedicle was found to be twisted, causing a venous thrombosis at that point, with hemorrhagic infarcts and degeneration of the tumor.

Verstraete [17] reports two cases of uterine fibroids with marked ascites. No history of cardiac, renal, or hepatic disease is given in either instance. In the first, a successful hysterectomy removed two litres of blood-stained ascitic fluid and a uterus containing multiple fibroids, some of which showed myxomatous degeneration in parts. In the second case the patient was extremely emaciated and anemic from constant loss of blood, and died of shock soon after the operation, at which several litres of very bloody ascitic fluid and the uterus were removed. The uterine tumor was apparently an angiofibroma, and similar nodules existed in the lungs. Some of these were light-colored and others resembled melanosarcomata, but absolute diagnosis by the microscope was prevented by loss of the specimens.

Two other abdominal hysterectomies for fibroma of the broad ligament are reported by C. Douvrin,[18] and one for fibroma molle by Vergriète.[19] All were successful.

W. R. Pryor [20] removed multiple fibroid tumors from two women per vaginam with good results. He states that it is not advisable to operate through the vagina when there is difficulty in opening the anterior and posterior cul-de-sac up

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above the level of the insertion of the uterine arteries, or when the tissues dealt with are necrotic, or when there are large fibroids associated with suppuration.

A. P. Clark[39] states that in all those cases in which the growth of the myomata cannot be arrested and the essentially threatening symptoms overcome by more gentle measures of treatment, enucleation, salpingo-oöphorectomy, supravaginal amputation, and complete ablation of the uterus by the vagino-abdominal method will be found to be the best surgical procedures for affording relief.

G. B. Massey[41] has investigated the subsequent history of 71 cases of intramural and interstitial uterine fibroids which he had treated by electricity. Personal examination showed that the tumor and all symptoms had disappeared in 5 cases; in 7 cases the patients reported similar results. Of the remainder, 29 had been symptomatically cured and the tumors greatly reduced in size; in 7 no change had been obtained. This gave a rate of 90 per cent of practical successes and 10 per cent of failures. All cases with arrested and slightly reduced growths were comfortable at a time from three to nine years after receiving the treatment, with two exceptions. The electrical treatment is practically restricted to the intramural and interstitial forms, particularly those of small size. Of the larger growths of these varieties those that have multiple foci of growth are most amenable; the large, smooth, monocentric tumors are least so.

Kottmann[40] reports 416 cases from the gynecological clinic of Berne. Contrary to the more common belief that this disease is most common amongst the unmarried and those who have not borne children, Kottmann's investigations show that these tumors are most frequent in married women and that the liability is proportionate to the number of children borne. Pregnancy and labor exert no influence upon the growth of these tumors; there is less liability to conceive [this observation is entirely opposed to the experience of the reviewer and others, who find that these tumors participate in the evolution and involution of the uterus during and after gestation]. It is important to note that in 25 per cent of the cases the menopause did not check the growth of the tumors, and in quite a number the symptoms increased and the growth became more rapid at that period without undergoing malignant changes.

H. T. Hanks[44] always operates through the vagina when the uterus and tumor are not more than three inches in the antero-posterior diameter, in a woman with a full-sized pelvis, and the cervix is not involved and can be easily drawn down, and the patient has borne children. For tumors above four inches in size he always operates from above, tying off the ovarian arteries, dissecting the peritoneum to the cervix and tying the uterine arteries, removing the lower cervix in most cases, often, however, leaving the bare shaving of the anterior and posterior lips, thus not injuring the vault

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of the vagina. He always covers every stump with peritoneum.

G. T. Harris[30] believes a radical operation is indicated when the growth of the tumor is persistent and rapid; when the tumor is in a young woman and growing slowly but continuously; when the patient has already passed her climacteric period of life and the tumor begins to grow rapidly; when cystic degeneration of the myoma occurs, as is apt to occur at the time of the menopause; when the myoma occupies the pelvis and produces pressure symptoms; when profuse hemorrhages are caused by the myoma. A radical operation is indicated when the pains and annoyances that accompany the tumor destroy the pleasure in existence and render the patient unfit for any work. He states that an operation is imperative when ascites is evoked in consequence of the myoma; when sloughing, suppuration, and telangiectatic degeneration occur; and, lastly, when pregnancy takes places in a uterus the seat of a large myoma.

Fibroid Tumors of the Vagina.—J. M. Emmert[31] reports the following case: The patient, age 46, married three times, had six children, the last delivered by forceps. Three years before he examined the case she had complained of a dragging sensation in the pelvis when carrying heavy weights, and on examination a tumor was found in the vagina. No operation was performed, but the growth was allowed to slough away. The dragging sensation returned, and upon examination a tumor was found protruding from the vagina, its lower part being necrotic. It was attached to the anterior vaginal wall by a sessile base, extending from an inch posterior to the meatus and to within an inch of the cervix. It was enucleated and the patient recovered. The tumor weighed one and one-fourth pounds and was four inches in length and two and two-thirds inches in diameter. Microscopic examination showed it to be a fibromyoma. The paper includes notes of nine cases observed by others but not previously reported.

Benign Tumors of the Breast.—Morton[41] has obtained good results from Thomas' method of removing breast tumors, the steps of which are as follows: With the patient in the erect position, a line is drawn in the fold made by the breast falling on the thorax, encircling the lower half of the organ. The patient is next anesthetized, and an incision is made along the line, going as deep as the thoracic muscles. The lower half of the breast is dissected off, turned upward, and laid on the chest wall. The tumor, approached in this way from the deep surface, is excised. All hemorrhage is checked, and the breast is then replaced. The edges of wound are sutured with fine silk, and a fine glass tube is used for drainage.

Ovarian Cysts.—A. M. Cartledge[42] records the removal of an ovarian cyst which had been growing for thirteen years, and for the last four years so rapidly that the patient had become unable to assume a reclining posture. She was five feet four inches in height, and the circumference of the abdomen

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at the umbilicus was six feet seven inches. Twenty-four gallons of fluid were removed before the patient was anesthetized, and ten gallons later. The fluid weighed two hundred and forty pounds and the sac five pounds. Symptoms of intestinal obstruction developed on the sixth day, and death followed.

J. B. Hellier[42] reports the case of a woman 62 years old who had, on May 18, paracentesis performed in the median line two inches below the navel. Three and a half gallons of excessively offensive, opaque, greenish-brown fluid were evacuated. The cyst slowly filled again, and on July 21 ovariotomy was performed. At this time the fluid had no unpleasant odor.

Leenen[43] reports a case of a dermoid cyst of the right ovary with twisting of the pedicle. The patient was a woman 32 years old. The twisting occurred during menstruation and was followed by severe peritoneal symptoms. Seven months later the decomposed contents of the cyst penetrated and emptied by the abdominal wall. The tumor was removed at a still later date. Both the operation and reconvalescence were very complicated.

Herzog[44] reports the case of a girl, 14 years old, who was suddenly seized with abdominal pain and vomiting. A tumor was found above the symphysis, apparently originating from the right ovary. After opening the abdomen the right ovary was seen to be changed into a large multilocular cyst with a twisted pedicle; its contents consisted of bloody serum. The left ovary also had undergone cystic degeneration, requiring its removal. Both tumors were pronounced dermoid cysts; these are rarely found at such an early period of life.

Rupture of an Ovarian Cyst.—A young woman about five months pregnant, and whose abdomen was abnormally large, received a somewhat severe blow after having partaken of a rather elaborate dinner. She soon experienced pains which a physician diagnosed as a spoiled stomach. A laxative was ordered. The day following the woman was in a condition of extreme collapse, rapid small pulse, dyspnea, vomiting, abdomen distended and painful and apparently containing free fluid. Vaginal examination showed the os to be dilated.

Toth[45] diagnosed the case as a ruptured ovarian cyst complicated by pregnancy, but, as there were no preparations and the surroundings very unfavorable, he thought it advisable to empty the uterus and postpone laparatomy until the following day. After the delivery of a six-months fetus the woman somewhat improved, but on the following day symptoms returned with increased severity. Immediate laparatomy was then decided upon, and after opening the abdomen about twenty quarts of colloid fluid were found in the abdominal cavity and removed. In the left side a ruptured ovarian cyst having a twisted pedicle and adherent to the intestines was found. Drainage of the abdomen after Mikulicz. The symptoms did not improve after the operation, and the patient died forty-eight hours later from general peritonitis.

Albuminuria in Uterine and Ovarian Tumors.—Luigi

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Negri[44] concludes a long and detailed study of this subject with the following summary: 1. The absence of albumin in the urine in cases of abdominal tumor does not exclude the possibility of a renal lesion. 2. Albuminuria is found in about twelve per cent of the cases of ovarian and uterine tumors; in some cases it is due to catarrh of the peripheric passages, but in the greater number it is of renal origin. 3. The albuminuria is in rare cases caused by the action of toxic products upon the renal epithelium, originating in alterations in the tumor itself or in alterations caused by it in the functions of the organism. As a rule it is due to disturbances in the renal circulation, either from venous stasis from compression of the blood vessels of the kidneys or from urinary stasis from pressure upon one or both ureters. 4. The significance of this albuminuria is grave only when the condition of the renal function and a microscopical examination of the sediment reveal a parenchymatous or interstitial nephritis or a pyonephritis. 5. The prognosis of operative interference under such conditions should be very reserved on account of the many factors to be taken into account which may have an injurious effect upon the kidneys. 6. Surgical intervention is permissible only in the case of slight lesions; in serious lesions it is justifiable only under urgent conditions.

The Clinical Significance of Pleuritic Effusions in Cases of Ovarian Tumor.—Giuseppe Resinelli[45] devotes a long article to the consideration of this question, and reaches the following conclusions: In tumors of the ovary we may often observe a pleuritic effusion, which is not to be considered as a casual complication, but as a true consequence of the disease. This effusion, as a rule, arises insidiously, being accompanied neither by fever nor by pain. It is usually bilateral, and when unilateral is found more frequently on the right than on the left side. It is not due to simple circulatory disturbances from pressure nor to an altered blood crasis, but it is sometimes a symptom of the propagation of the neoplasm to the pleura, more frequently of pleuritic reaction from irritation transmitted through the diaphragm; sometimes it represents an abnormal peritoneal irritation, chiefly in such cases as are accompanied by ascites. The presence of an afebrile pleuritic effusion, not in relation to accidental pleuritis, in cases of ovarian tumors, is, in the majority of cases, a symptom of the malignity of the tumor; this is especially the case when we can exclude such complications as torsion of the pedicle, suppuration, and rupture of the cysts. When the pleuritic effusion is not the result of diffusion of the neoplasm to the pleura or to the lungs, operative interference, so far from being contraindicated, may be urgently called for. The seat and extension of possible secondary peritoneal foci of infection must determine the wisdom of intervention, especially bearing in mind that pleuritic effusions occur principally in cases in which the ovarian neoplasm has already invaded the peritoneum. "Toracentesis" in rare cases only may be preparatory to laparatomy; complete removal of

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the tumor is the most prompt and efficacious measure for causing a disappearance of the pleuritic effusion.

Ectopic Gestation.—G. H. Balleray[48] writes that for the diagnosis of ectopic pregnancy before rupture careful rectal and vaginal examinations are of the greatest value. The use of the uterine sound as a means of diagnosis may be permissible in cases of grave doubt as to whether the pregnancy is intra- or extrauterine, but its general employment cannot be too strongly condemned. When there is great uncertainty as to whether ectopic pregnancy is present, but when the presumption is strongly in favor of its existence, exploratory abdominal section is imperative. The writer considers that abdominal section possesses many advantages over vaginal, and so should always be chosen in this class of cases. All cases of early ectopic pregnancy should be operated upon as soon as diagnosed, unless intraligamentous rupture has occurred.

In reporting a case of ectopic pregnancy in the right tube with a left hematosalpinx, Jacobs[49] calls attention to the fact that this is the sixth case of tubal pregnancy for which he has performed total abdominal castration this year. He records these as substantiating his statement that in the majority of cases of tubal pregnancy the tube of the other side is the seat of lesions which demand total castration by either the vaginal or abdominal route.

Kouwer[50] reports a case of ectopic gestation which probably belonged to the very rare type of primary ovarian pregnancy. The woman was about six weeks pregnant; laparatomy for internal hemorrhage. The extirpated specimen showed a perfectly healthy tube and an elongated ovary. In the substance of the latter a small fetus was found, and from the various anatomical characteristics it was evident that impregnation occurred within a Graafian follicle.

J. G. Earnest[51] operated on a case of extrauterine pregnancy at the seventh month. The woman recovered from the operation and the wound healed except for a fistula from the lower angle of the wound; through this she passes small amounts of fecal matter.

A. S. Smith[52] reports a case of ruptured tubal pregnancy. He operated, removing the ruptured tube and a small fetus enveloped in its amniotic sac. Patient recovered and soon afterward became pregnant again.

A. H. Cordier[53] believes the abdominal route to be the safest in operating for extrauterine pregnancies.

Abdominal Drainage.—W. L. Burrage[54] states that there is less headache, backache, and abdominal pain where the postural method of drainage is used in place of other methods.

Hysterectomy.—In operating in septic diseases of the appendages, L. Frank[55] prefers the abdominal operation without the removal of the uterus, as he believes there is less shock, less danger of hemorrhage, that the equilibrium of the pelvic floor is not destroyed, and that the mortality is lower than when the uterus is removed. He does not oppose vaginal

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hysterectomy for cancer or where the uterus is so diseased that recovery would be impossible, but this condition, he thinks, occurs in the rarest cases and those only of puerperal origin.

C. Nedwill[14] performed hysterectomy on a woman, removing a cylindrical-shaped fibroid tumor weighing nineteen ounces, in which was buried the diminutive uterus. He also removed from the right side an ovarian cyst. On the fourth day after the operation the patient complained of flatulent distension and great discomfort. Saline draughts of sulphate of soda and sulphate of magnesia were given until fourteen drachms had been used; in addition fifteen grains of calomel were given in three doses of five grains each. Turpentine enemata were also used, but neither flatus nor motion was passed. On the sixth day the patient vomited fecal matter. On the eighth day the patient passed several large motions. Convalescence was rapid.

The Indications for Abdominal and Vaginal Operations.—Veit[15] at a recent meeting of the Netherland Gynecological Society discussed the indications for vaginal laparatomy. For fibroid tumors he prefers to extirpate per vaginam, if the tumor can be pressed into the pelvis. Larger tumors must be removed by abdominal section. Ovarian tumors should always be removed by the abdomen, with the exception of very small movable tumors. Of tubal diseases, only the very rare one-sided affections are suitable for vaginal operations. In operations for tubal pregnancy great care must be exercised when performing the vaginal operation; in a number of cases additional laparatomy will become necessary. Adhesions absolutely contraindicate vaginal operations. For an exploratory incision the vaginal route may, and in doubtful cases should, be preferred.

Vagino-abdominal Section.—T. H. Hawkins[16] advocates the vagino-abdominal operation for the removal of abscessed tubes and ovaries. The advantages of this operation are as follows: The adhesions are more easily broken up from below, and the abdominal wound is much shorter than when simple abdominal section is performed.

Vaginal Operations.—E. B. Cragin[17] considers that there are many conditions in the pelvis not suited for the vaginal operation, and that the question is not what can be done by this route, but what, in the interest of the patient, can best be done in this way. He considers it particularly applicable for small fibromyomata, small ovarian tumors, pus cases indicating hysterectomy, and cases in which exudate demands drainage without removal of any organ.

J. T. Johnson[18] advocates the vaginal route for operating for pus in the pelvis. The operation he practises consists simply in incision of the vaginal fornix immediately behind the cervix, opening of the pus or blood sacs with pointed curved scissors or the exploring finger, dilating as widely as possible these openings, irrigating freely, and draining with gauze.

Vaginal Celiotomy.—Emil Ries[19] defines vaginal celiotomy as

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including: (1) incising peritoneum through the anterior fornix; (2) pulling the fundus of the uterus into the vulva; (3) operations on uterus and appendages; (4) replacing and eventually suturing into place of the uterus; (5) closing the wounds of peritoneum and vagina. As contraindications he mentions only intimate adhesion of large tumor high up in the abdomen, recent infection of labial glands or urethra, pregnancy, and tuberculosis of the peritoneum. He considers this route practicable for vaginofixation; removal of fibroids, subserous, interstitial, or submucous, the latter after splitting the anterior wall of the uterus in two or by Cesarean section for fibroid; breaking up adhesions; retrograde catheterization of the uterus in cases of occlusion of the cervix; closing perforations of the uterus; shortening the round, sacro uterine, or ovarian ligaments; salpingectomy, total or partial; salpingostomy; salpingo-hystero anastomosis; sterilization by incising and ligating the tubes; castration; ovariotomy; resection of the ovary; operation for prolapse of the ovaries; and even entero-anastomosis for intestino-vaginal fistula. Compared with ventral celiotomy, vaginal celiotomy when feasible presents the following advantages: Shock is practically absent; the danger of infection from without is very much smaller, as only a small part of the peritoneal cavity is laid bare; infection from pus sacs ruptured during the operation is less to be feared, because the pus has a ready escape through the vagina and the general peritoneal cavity is not contaminated; the period of recovery from the operation is much shorter and the patients are able to resume their work immediately; there is no danger of wound suppuration confining the patient to bed for weeks, as may happen after ventral incision, no danger of subsequent hernia, and no visible scar is left.

Vaginal Hysterectomy.—J. B. Murphy[60] prefers the vaginal route for the removal of the carcinomatous uterus, though the abdominal has recently been advocated as permitting the removal of retroperitoneal glands which have become involved. Murphy considers this only a theoretical advantage, and believes that it is more than counterbalanced by the increased mortality of the abdominal route.

Vaginal Section.—Schooler[60] believes that abdominal section is often done where a vaginal section would suffice. He advises the vaginal route in cases where pus abounds and where contamination of the abdomen would occur if the collection were attacked from above. When this route is employed there is less danger of infection, fewer adhesions are to be broken up, fewer arteries to be ligated, and there is less liability of hernia than in abdominal section.

Wendel and Bailey,[61] in considering this operation as a means for removal of small multiple uterine myomata, advise its use if the myomata are observed to be growing. They report 14 cases on which they operated, all of whom recovered. Their technique is as follows: Patient is anesthetized and placed upon the table in the lithotomy position. A sterilized rubber drain, with an aperture corresponding to vulvar commissure, is stitched

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to fourchette and thighs. This is to remove danger of infection from the anus. Perineum is retracted by a Fritsch speculum. Next the uterus is curetted and washed. Erosions are burned with Paquelin cautery and the vagina is flushed with sterilized water. The labia are separated by two lateral retractors. The incision is made anterior or posterior to the uterus as required. Unless the tumor is limited to the anterior aspect, open the posterior fornix and explore Douglas' pouch first. When the anterior fornix is opened use the sagitto-coronal incision. A volsella is attached to the cervix and held by an assistant. If there are intraligamentary complications ligate corresponding uterine artery. A Hegar uterine dilator is placed in the uterus and the organ is palpated between the finger and the instrument to find position of myomata, if any. When the uterus is sutured the stitches should be so placed as not to be exposed to infection. After removal of myomata the wound is sutured or left open as required. The vagina is then packed with gauze, which should be removed every two days.

Hysterectomy.—F. Terrier[82] declares his preference for supravaginal amputation when it is possible to substitute this procedure for total abdominal hysterectomy, as it is simpler, more rapid, and gives excellent results. *Le Bec*[83] records 57 successful total abdominal hysterectomies. *T. Jonnesco*[84] considers this operation preferable for the removal of the uterus and appendages, and uses the vaginal route only when obliged to do so and in cases of cancer in which the uterus is movable. *A. Monprofit*[85] advocates the abdominal route for the treatment of uterine fibroids as unquestionably preferable in the case of large tumors, and as permitting either a radical removal or conservative methods in dealing with smaller benign or malignant growths. *Bouilly*,[86] on the other hand, strongly favors the vaginal operation for all tumors not reaching above the umbilicus. *Péan* and *Delauney*[87] also defend the vaginal route, and *Hartmann* the abdominal.

Vaginal Hysterectomy and the Employment of Clamps.—Brandt[88] describes Péan's method of vaginal hysterectomy and lauds its advantages as compared with the abdominal operation. He operated 17 times by this method. In the after-treatment the administration of morphine is condemned, it often being the cause of nausea and vomiting. If nausea is absent barley and oatmeal gruels are allowed. In distressing vomiting one to two cups of warm water are administered. After forty-eight hours the clamps are removed; in case of fever the tampon is removed from Douglas' cul-de-sac, obstructed drainage often being the cause of the fever. On the eighth day a vaginal douche is administered. A clean, moist tongue is considered to be a good symptom; the tongue gives early notice of improvement or approaching complications, and the author considers the careful observation of the tongue of greater importance than of pulse and temperature. A combination of clamp and ligature is inadvisable on account of the probable infection of the ligature after removal of the clamp.

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Anterior Abdominal Hysteropexia in the Surgical Cure of Uterine Retrodeviations.—F. Caneva Zanini[1] thus sums up an elaborate study of the subject: 1. The radical surgical cure of uterine retrodeviations of a certain gravity, where the uterus is fixed and adherent, is best performed by anterior abdominal hysteropexia by the intraperitoneal method, undertaken either as a typical operation or in the course of a laparatomy done for some other therapeutic purpose. 2. In a limited number of fixed retrodeviations, under special conditions of the uterus and ligaments, these being in a healthy condition, anterior abdominal hysteropexia is of equal value with that of ligamental hysteropexia (Ruggi's operation). 3. In movable reducible posterior displacements abdominal hysteropexia is indicated only in the course of a laparatomy for some other purpose, as a complementary operation; otherwise we should have recourse to the Alexander-Adams procedure of anterior vaginal hysteropexia or to Caneva's operation. 4. The requisite conditions for success in fixing the uterus to the abdominal walls are: (*a*) solidity of the utero-parietal adhesion, obtained by separate suture; (*b*) suture of anterior wall of the uterus in the median region, bounded above by the point of insertion of the tubes and below by the isthmus of the uterus. (This precaution will prevent pain, abortion, premature deliveries, and dystocia.) 5. The above-mentioned conditions of suture are absolutely indispensable in women capable of fecundation. 6. This operation not only permits of future pregnancies without the causation of serious complications, but is actually favorable to fecundation to a far greater extent than any other known process adopted for the cure of fixed retrodeviations of the uterus.

Retrodisplacements of the Uterus.—W. E. Ashton[2] considers five points in the treatment of recent displacements: 1. Removal of the cause and repair of injuries to the soft parts, as by curetting, perineal and cervical repair, etc. 2. Replacement of the uterus by bimanual manipulation or the knee-chest position. 3. The use of the Hodge or Smith pessary. 4. Reduction in the size of the uterus and stimulation of its ligaments by the routine use of the hot douche and ichthyol tampons. 5. General treatment and hygiene. In chronic displacements he strongly urges ventrosuspension, performed in the now generally accepted way by sutures passing lightly through the uterine fundus and the peritoneal edges of the wound.

Division of the Utero-sacral Ligaments and Ventrosuspension is advocated by Burrage[3] for immobile retroposition with anteflexion. Through an abdominal incision the uterus is drawn forward by a suture through the fundus, the patient being in the Trendelenburg position, and the utero-sacral ligaments, seen as two tense white bands, divided as in a tenotomy; the lozenge-shaped wounds resulting may be closed by a stitch, if necessary; bleeding is slight. The fundus is then attached to the peritoneal edges and transversalis fascia

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at the lower angle of the abdominal wound, which is then closed. The operation is preceded by a thorough dilatation and curettage.

Ventral Fixation.—F. S. Martin[44] describes the following operation for ventral fixation of the uterus: The abdomen is opened with a median incision three inches in length extending from four centimetres below the umbilicus to about six above the symphysis pubis. The uterus is freed from all adhesions, as is also the posterior surface of the broad ligament. From one side of the incision a ribbon of peritoneum and subperitoneal connective tissue about one and a half centimetres wide, with one of its edges corresponding to the free edge of the abdominal incision, is rapidly dissected free. The end of the ribbon corresponding to the upper end of the wound is severed, and the lower end dissected down until it extends beneath the lower angle of the wound. The uterus is now supported well forward with two fingers of the left hand; a Cleveland ligature carrier is made to transfix the fundus just posterior to its crest in a direction from behind forward to a depth of two millimetres and a width of grasp of one or two centimetres. After the blades of the carrier have penetrated the tissue they are opened about five millimetres and made to grasp the free end of the peritoneal ribbon and then drawn through the opening made. The uterus is pushed well forward on the ligament until it reaches the lower, fixed end, and then the uterus is temporarily fixed by a buried catgut suture. This suture is passed through the aponeurosis, the muscle and peritoneum on one side of the lower angle of the wound, then transversely through peritoneal and subperitoneal coat of the uterus just posterior to the point of exit of the new ligament, and finally passed through the structures of the opposite side of the abdominal wound and securely tied. After the sutures have been placed in the abdominal wound, before they are tied, the upper, free end of the peritoneal ribbon is laid in the middle of the abdominal incision. The sutures are then tied. Patient should stay in bed at least four weeks and support the wound for several months.

Vaginal Fixation of the Uterus.—Hohl[45] describes a method of vaginal fixation which differs but slightly from that of Dührssen, and reports 60 cases from the University Clinic in Halle. The uterus is attached to the anterior layer of the plica vesico-uterina, and not to the vagina; this diminishes the liability to complications during parturition. Recovery or marked improvement in 87.5 per cent. About the same results were obtained in 27 cases of ventrofixation. The results in the treatment of prolapse were the following: vaginal fixation with perineal repair, cured 56 per cent (after one year), improved 25 per cent, no improvement 19 per cent; after ventrofixation, cured 67 per cent, no improvement 33 per cent. The indications for vaginal fixation should be more restricted and reserved for cases in which pessary and other treatment has failed to relieve.

Retroversion and Retroversio-flexion of the Uterus.—The pathological results of these malpositions are grouped by

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A. Goldspohn[80] under four heads: (1) Mechanical interference with the functions of the adjacent hollow viscera and with gestation, which may cause abortion. The retroverted uterine fundus presses upon the rectum, and the bladder is disturbed by pressure of the rigid cervix or by traction exerted by the cervix when the uterus is greatly retroflexed. Hyperemesis of pregnancy is often relieved by correction of the position of the uterus, and this also sometimes permits the occurrence of pregnancy in women previously sterile. (2) Retroversion is the first stage of prolapse. (3) It induces disease of the ovaries, because it is the most frequent and potent cause of prolapse of the ovaries, which leads to venous hyperemia by torsion and traction upon their ligaments, and by traumata from pressure by the rectum, by the body of the uterus which is forced against it by intra-abdominal pressure, or by being caught between the two. (4) Retroversion and retroversio-flexion, by traction and torsion upon the uterine and ovarian ligaments and upon the efferent vessels which they contain, cause a partial venous stasis and reduce the defensive capacity of the tissues against microbic invasion.

Inversion of the Uterus.—Switalski[81] reports a case of puerperal inversion after abortion occurring in a multipara 36 years old. Reinversion was not successful even under anesthesia. Switalski performed Küstner's operation for reinversion. This method consists in a broad incision into Douglas' pouch. A finger is next inserted into the funnel formed by the inversion. The uterus is split open in its entire length, the cervix excepted, after which the reduction is quite easy. The uterine wound was closed, and, after replacing the organ, it was attached to the posterior fornix. The patient made a good recovery. Switalski states that inversion after abortion is exceedingly rare; the literature contains only two other cases.

Prolapsus Uteri.—Sänger[82] opposes the extirpation of the uterus on account of prolapse, believing that wherever possible plastic operations should be preferred. If the cervix is much hypertrophied he advises amputation as an aid to the pelvioplastic operation. This operation can be performed without anesthesia, and its results are said to be far superior to those of the Alexander operation. As an important adjunct of the cervical operation he advises anterior and posterior colporrhaphy. The latter is almost indispensable. Sänger describes the technique of this operation, which consists of a median incision and the detachment of lateral flaps from below upward. He has operated after this method for the last seven years with uniform good success. Alexander's operation of ventrofixation and hysterectomy has rarely been performed.

W. Krusen[83] divides prolapses of the uterus into these different degrees of descent: (1) a slight lowering, with fundus below the pelvic brim; (2) the os appearing at vulvar orifice; (3) complete prolapse. The predisposing causes he gives as follows: Chronic metritis from frequent parturitions; too brief a

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period of rest in the recumbent position after labor or abortion; tight lacing and heavy clothes suspended from the waist; heavy lifting and powerful muscular exertion; chronic constipation and difficult defecation; uncorrected retrodisplacement and intra-abdominal neoplasms acting mechanically.

Prophylactic treatment: He advises the correcting of all the above troubles. Where chronic inflammation of the uterus and endometrium exists he uses hot douches and boroglyceride tampons, and curettes if necessary. In cases of cystocele and rectocele he performs anterior colporrhaphy and perineorrhaphy.

Palliative treatment: Reduce uterus by gentle taxis if possible; if this cannot be done, use hot sitz baths and hot liquor plumbi et opii, followed by the application of an elastic bandage. To relieve pelvic congestion he advises copious hot injections of a one per cent solution of creolin, tampons of ten per cent ichthyol in glycerin, or tannin and glycerin. If, in cases of procidentia, irregular ulcerated surfaces are found, these he dusts with powdered acetanilid or tannin and iodoform in equal parts. After reduction he temporarily uses as a support tampons of lamb's wool dusted with some antiseptic or astringent. After the acute inflammatory symptoms have subsided he introduces an inflated soft-rubber pessary.

Surgical treatment: When the increased size of the uterus is due to subinvolution or hypertrophic elongation or laceration of the cervix, he believes thorough curettement or amputation of the cervix to be the best means of reducing the weight of the organ. He states that ventrofixation is more satisfactory than shortening the round ligament. Where there is cystocele or rectocele he performs anterior colporrhaphy and perineorrhaphy. After menopause, or where there is extensive ulceration of the vaginal wall or cervix, he thinks hysterectomy to be often indicated and justifiable.

Radwansky [46] describes an interesting case of complete uterine prolapse in a new-born infant. When seen the child was twenty-four hours old. A roundish tumor four centimetres in length was found between the labia. The vaginal cervix was swollen and reddened and in part ulcerated. The sound entered the uterus three centimetres. The reposition of the uterus was quite easy, but was followed by severe expulsive pains and evacuations of the rectum. The prolapse was therefore left undisturbed. The treatment consisted in keeping the parts clean and diminishing the irritation with a mild antiseptic ointment. Under this treatment the prolapse gradually disappeared.

Circular Suture of the Intestine.—W. S. Halsted,[47] in speaking of this variety of suturing, emphasizes the following suggestions: 1. Do not use stitches which enter the lumen of the intestine. 2. It is impossible to suture the serosa alone. 3. It is impossible to suture serosa and muscularis alone, unless you are familiar with the resistance offered by the submucous coat; furthermore, the stitches which include only these two coats are easily torn out. 4. Each stitch should

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include a little of the submucosa, as a fine thread of this coat is stronger than a considerable thread of the entire thickness of the serosa and muscularis. 5. The mattress stitches are preferable, as a single row of them is sufficient, because they tear out less easily, appose larger surfaces and more evenly, and constrict the tissues less than the Lembert stitches do. 6. All the stitches should be taken before any are tied. 7. Before the intestine is resected its blood supply should be studied with reference to placing ligatures and stitches. He claims that the inflated rubber cylinder in circular suturing stops the vermicular action of the bowels; that it unrolls and spreads out to a fine edge the everted edge of the intestine, and enables the operator to place the stitches with greater precision. He states that with the aid of this rubber cylinder a larger intestine can be sutured to a smaller one; that the contents are prevented from escaping; and, lastly, that the operation can be performed without an assistant.

Intraligamentous Cysts.—An improved technique for the removal of these cysts is described by Rufus B. Hall.[33] The fact that a large per cent of these cysts contain papillomatous growths makes it incumbent upon the operator to enucleate them entirely and not to leave portions of the cyst wall behind. Where a portion has been left there is usually a recurrence followed by death in a few months. The mortality from operation for intraligamentous cyst is very much higher than is apparent from the statistics available. There is a disinclination to put on record fatal cases. It is well known that a large per cent of the cases that die, die from hemorrhage either on the table or within a few hours after they are put to bed. The technique proposed converts this into practically a bloodless operation, thereby saving many lives. In all cases where the cyst cannot be easily stripped from the pelvic floor, first tap the cyst and empty it. Ligate the ovarian artery on the tumor side at the pelvic border. Ligate the ovarian artery on the opposite side outside the healthy ovary. Divide the broad ligament. Divide the peritoneum above the top of the bladder and push the bladder down. Ligate the uterine artery on the healthy side. Cut across the cervix and clamp or ligate the uterine artery on the tumor side. The blood supply is then cut off and the patient has not lost a drachm of blood. The capsule of the tumor can now be divided above the top of the bladder and at a suitable point behind, and the tumor enucleated from below upward with very much greater ease than from above downward, and with corresponding safety to the ureter, the rectum, and the iliac vessels. Close the peritoneum over the pelvic floor with a running catgut suture. You can see every part of the field of operation, and you separate the adhesions along the line of cleavage instead of against it as in the old method.

C. K. Fleming[34] reports an identically similar operation.

Tumors of the Rectum.—G. Bingham[35] discusses this topic under the heads of benign and malignant tumors. He states

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that of the benign neoplasms of the rectum the adenoma is the most commonly met with; that this growth, most frequently met with in children, consists of an hypertrophy of the glandular structure of the intestine; that they may be single or multiple, and vary in size from that of a pea to that of a hen's egg. He states that the lobulated surface of the polypoid growths is reddish, unless nipped by the sphincters, when it becomes livid. Fibroma he believes to be not so common as adenoma, yet it appears to be a pretty constant accompaniment to long-standing piles and anal fissure.

Papilloma of the rectum he thinks is a rare disease. He states that when found it consists of a projecting mass of mucous papillæ covered by columnar epithelium.

Lipoma, mucoid cystoma, dermoid, angioma, lymphoma, myoma, chondroma, he believes to be seldom found. The common characteristics of the group of benign tumors he gives as follows: 1. No tendency to break down. 2. The pedicle. 3. No invasion of deep tissues. 4. No metastasis. 5. A tendency to encapsulation. 6. No constitutional effect. 7. No tendency to return when removed.

Of the malignant growths, he believes the adeno-carcinoma occurs comparatively frequently after middle age. He gives the essential characteristic of carcinoma as the irregular arrangement of the new elements and their invasion into the deeper tissues. He states that the tendency of carcinoma is to remain sessile, invading the deeper structures, and later affecting the pelvic and lumbar glands, and later still the liver, spleen, kidneys, lungs, and peritoneum.

Colloid carcinoma, he states, assumes the form of a distinct, translucent mass projecting into the bowel lumen, the jelly-like appearance being characteristic.

Sarcoma he describes as being made up of embryonic connective tissue, sometimes growing to be an enormous lobulated tumor.

Fibroid of the Ascending Colon is reported by Krukenberg.[17] The tumor, which was adherent to the ascending colon, was at first taken for a carcinomatous kidney, but a microscopical examination proved it to be a simple fibroid having its origin in the colon. This exceedingly rare case resembles the one lately reported by Pfannenstiel.

Vaginal Extirpation of the Rectum.—Liermann[18] describes four cases of extirpation of the rectum per vaginam. The operation is to be performed in the lithotomy position, as an elevation of the pelvis is liable to produce infection.

Influence of Diabetes Mellitus upon the Female Sexual Organs and their Functions.—Gräffer[19] points out that this disease is most frequent in women between the ages of 30 and 40, after which it gradually declines. This is contrary to the statistics, comprising both sexes, which show that this disease is most numerous between 50 and 60 years. Gräffer ascribes this disproportion to the greater sexual activity in women between the years of 36 to 40 (?). Pruritus vulvæ is observed in women

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suffering from diabetes at all ages. In most cases this is a secondary disease, the diabetic urine constituting a better medium for the growth of bacteria. The treatment of vulvitis diabetica must, in the first place, be directed against the causa irritans, but local treatment is also generally necessary. Gräffer advises a thorough cleaning of the vulva and vagina with soapsuds, followed by irrigation with clean water. He rarely prescribes ointments. The intense itching can be relieved through the application of cocaine solutions. Excoriations, generally the result of scratching, are best treated by painting the parts with a ten per cent solution of nitrate of silver.

Atrophy of the uterus and ovaries is a frequent observation in women suffering from diabetes. This is at times accompanied by amenorrhea, probably a result of atrophy. These are not initial symptoms, but only occur after the depressing effects upon nutrition are well marked. As in men, a diminution in the *libido sexualis* is present in women. This at times is preceded by a temporary increase, which Gräffer ascribes to an irritated condition of the external genitals. The view so generally prevailing, that diabetic women do not conceive, is shown to be unfounded; it is true, however, that conception is not as frequent as under normal conditions. In two-thirds of the cases pregnancy proceeds and terminates normally; the remaining third end in abortion or premature labor. A rather large percentage of the children die soon after birth, from general debility. Hydramnion is frequent; the liquor amnii contains sugar. The percentage of hydrocephalus is excessively high. Diabetes itself is much aggravated by pregnancy, but diabetic coma is rare. If at all, it appears either during or immediately after labor and proves rapidly fatal. Cases of sepsis following labor are rarely traceable to the diabetes, but generally to faulty asepsis or antisepsis. The question whether premature labor is advisable in cases of diabetes is difficult to decide, and is not answered by the author.

Movable Spleen.—Stierlin.[11] The dangers of movable spleen consist mainly in a torsion of the pedicle. The surgical treatment consists of two methods—of splenopexy and splenectomy. Splenopexy is indicated in cases of floating spleen if the volume of the organ does not exceed three times the normal. The best methods are those of Rydygier or Bardenheuer. Large splenic tumors should be extirpated. Of thirty-two splenectomies for movable spleen only two cases ended fatally. In operations for movable spleen there is little danger from hemorrhage.

Regeneration of the Spleen after Extirpation of the Organ.—Tedeschi[12] states that experiments upon animals have shown that the spleen is re-formed after its extirpation. An observation by Tedeschi makes it probable that in the human being a secondary spleen may replace the extirpated organ. At the postmortem on a young girl the spleen was absent from its normal situation, but instead of this was found a tumor,

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about the size of a fist, in the omentum. This tumor was of slate color, irregular in form, and microscopically presented all the characteristics of a normal spleen. Besides this larger mass, about twenty small formations similar in type were found about the course of the abdominal arteries and veins. From other conditions observed Tedeschi believes that the spleen itself was destroyed through torsion of its pedicle, and replaced by the aforementioned structures, which gradually assumed its function.

Tuberculosis of the Kidneys.—Goldberg[91] reports three cases of tuberculosis of the kidneys, two of which were operated on. The early diagnosis is important. Renal colic and hemorrhage are at times early symptoms. The bleeding is apt to be complicated with pyuria or renal colic. A cystoscopic examination is necessary for both the diagnosis and the location of the disease. In the early stages of the disease surgical interference is not justifiable. Creosote and ichthyol treatment may give good results.

Examination of the Kidneys.—Bayard Holmes[90] considers auscultatory percussion a useful method of examining the kidneys, and one that can be relied upon for determining their size and location in moderately stout or thin persons. The phonendoscope should be placed about five centimetres above the crest of the ilium and just below the last rib, about six or seven centimetres from the vertebral spines. Before a nephrotomy or a nephrectomy the ureters should be catheterized to determine the competence of the remaining organ.

Post-operative Peritonitis.—In a case of peritonitis occurring after laparatomy, Erlach[92] reopened the abdominal wound, inserted an iodoform drain, and covered the intestines with sterilized gauze. There was an immediate improvement in the symptoms, and, although the case was an exceedingly serious one, the patient recovered. Erlach agrees with Winckel that many cases of post-operative peritonitis, especially those taking their origin from the genitals, and also those due to puerperal infection, would be much benefited by the non-closure of the abdominal cavity.

Acute General Peritonitis from Infective Appendicitis.—Gould,[74] in speaking of appendicitis, divides it into three classes. The mildest and most common is a circumscribed plastic peritonitis; this variety requires no surgical treatment. The next form, second in gravity and frequency, is a circumscribed suppurative peritonitis or appendicular abscess; this variety should be opened as soon as there are evidences of pus. The last variety, the gravest and least frequent, is that in which the infective materials escape from the appendix into the peritoneum. Of this last variety he reports 12 cases which go to establish certain important points: (1) That there is considerable variation in the clinical course of these cases. The onset may be abrupt or gradual and remittent; symptoms may be very severe and rapidly fatal or slightly marked; fever may be high or altogether absent; patient may vomit or be entirely

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free from it; intestinal peristalsis may be arrested or exaggerated. (2) Pathological course of events may be just as varied. An inflamed, sloughing, and perforated appendix may be surrounded by an apparently healthy peritoneum, or the appendix may be bathed in a quantity of dark, turbid, stinking fluid, the remainder of the sac appearing normal. There may be a sero-purulent exudation throughout the peritoneal cavity, or the serous membrane may be widely smeared with buttery lymph; lastly, around appendix there may be a quantity of pus. (3) He urges the importance of early diagnosis and immediate operation.

Of the 12 cases 7 recovered. Gould regards frequent vomiting as a very grave symptom. If effusion is limited to the immediate vicinity of the appendix, gentle wiping with a sponge is the best means of cleansing. He prefers glass drainage tubes in all cases except where the pelvis is to be drained.

Variations in the Relations of the Appendix.—Craig[13] discusses this topic from an embryological point of view. He states the influences causing such variations as follows: Arrest of growth of the cecum, position of the base of the appendix, firmness of peritoneal covering of the appendix, and mobility of the colon.

Catheterization of the Fallopian Tubes.—Schultz[14] made a series of experiments (twenty) upon the cadaver to determine the possibility of catheterizing the Fallopian tubes, and was not successful in a single case, even after opening the uterine cavity. He also investigated the possibility as to whether fluids injected into the uterus might enter the tubes and the abominal cavity. He found that under normal conditions such fluids might enter the tubes, but a rather high pressure was required. In pathological conditions irrigation of the tubes is an impossibility.

Reflex Disturbances due to Pelvic Diseases.—Duff[15] operated on six patients troubled with reflex disturbances due to pelvic disease. All reflexes ceased after diseased organs were removed, except in one case where patient became maniacal for a short time three weeks after the operation.

Pelvic Support.—J. Eastman,[16] in cases of complete procidentia occurring after menopause, uses a modification of the operation devised by Mackenrodt. He makes a longitudinal incision in the anterior vaginal wall from a point one inch back of the urethra down to the uterine cervix; then going through the utero-vesical space into the peritoneal cavity, bringing the uterus forward to a position of complete anteversion and stitching it with silver wire, following up with the Emmet operation. In vaginal hysterectomy he narrows and rounds the broad ligaments by constricting ligatures, and not only drags them forcibly down into the vaginal wound, but draws the vagina upward as much as possible by means of sutures. He believes the uterus should never be removed unless it is incurably diseased.

Amenorrhea.—E. L'H. McGinnis[17] reports two cases of

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amenorrhea, due to undeveloped uterus and ovaries, treated by the employment of an intrauterine electrode. Pregnancy occurred in one, and in the other menstruation appeared.

Hysterical Dysmenorrhea.—Vedeler [80] observed, among 4,000 patients, 57 cases of hysterical dysmenorrhea, and concludes, after a careful study of his cases, that dysmenorrhea is not a cause of hysteria, but only a symptom of the latter disorder. An examination of the pelvic organs is not sufficient for a correct diagnosis, but the whole nervous system demands careful investigation. The treatment must be directed toward an improvement of the general condition. If possible the patient should be removed to an institution. Hydrotherapy, massage, ergotin, and the bromides are the treatment advised, and for suggestive purposes the constant or faradic current.

Hysteria.—Coleman [77] suggests as a new definition that "hysteria is a functional disease produced by auto-suggestions or self-hypnotism." He gives a brief description of the different ways in which whole communities have been affected with hysteria at different times in the world's history. Its symptoms embrace symptoms of all diseases, one condition only being constant, and that is a sensitive, mobile, unstable nervous system. He recommends suggestion as the best treatment, the patients having cheerful surroundings and being constantly told they are getting well. The use of opiates should be condemned, as there is great danger that the patient will become an opium habituée.

The Influence of Somatose upon the Mammary Secretions of Nursing Women.—Drews [80] reports 75 cases in which he obtained the same good results as in 25 former cases published by him in 1896. Somatose exerts a direct influence upon the mammary glands. By its administration one is enabled to increase an insufficient secretion or re-establish the flow of milk after it has ceased. It is, of course, necessary that the glands be developed and the woman be not afflicted with organic disease, which in itself would contraindicate nursing. Drews administers one teaspoonful three or four times a day, which, as somatose is almost tasteless, may be mixed with milk, cocoa, soup, etc. It should be given when the first symptoms of the deficient secretion, such as pain in the breasts and back of the head, general emaciation, etc., make their appearance.

Rupture of the Laparatomy Wound.—Braun [81] reports the rupture of the laparatomy wound ten days after the operation, and remarks that he recently published another case in which the accident occurred six days after the operation and where secondary closure of the wound effected a complete cure. In the present case the subject was exceedingly fat. The abdominal incision, ten centimetres in length, healed per primam, and the sutures were removed on the ninth day. The wound was protected by strips of adhesive plaster. The patient stated that about twenty-four hours later, after a violent fit of coughing, she experienced a sudden pain in the abdomen. When the dressing was changed, twelve hours later, the

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abdominal wound was found to be entirely open and a coil of intestines protruded. The wound was closed again by a number of wire and silk sutures, which effected a permanent repair.

Tumor of the Umbilical Cord.—At a recent meeting of the Vienna Obstetrical Society, Huebl[81] demonstrated a rare tumor of the umbilical cord which was formed by a dilatation of the umbilical vein. After hardening, the circumference of the tumor was 13 centimetres, its largest diameter 4 centimetres. Huebl remarks that the tumor had shrunk quite considerably through the hardening process.

Mental Disturbances in the Female cured by Gynecological Operations.—Mundé[82] says: "I would certainly advise the closure of a deeply lacerated cervix or perineum, if that were the *only* lesion I could detect in a woman suffering from some mental disturbance, *especially if she were aware of the existence of the lesion*, and after all other means had been tried ineffectually to restore her mental condition, I should then expect the operation to act as a moral or a mental remedy, almost or entirely irrespective of its local necessity. But I should be careful not to promise a success to the family; the patient, of course, should be impressed with the certainty of a cure. But I would not advise or practise the removal of the ovaries or uterus, any more than the repair of a lacerated cervix or perineum, or the removal of the clitoris or nymphæ for an undoubted insanity of more or less permanent type. Whatever improvement would ensue would probably be but temporary. The results of oöphorectomy in insane women have not been favorable. The insanity had nothing to do with the ovaries or their functions. What benefit could there be expected from their removal? If such a connection can be distinctly determined, then the case is different and the appendages should be removed."

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DISEASES OF CHILDREN.

Amaurotic Family Idiocy.—Sachs[1] reviews the literature, 27 cases having been reported up to date. The chief symptoms of the disease are: psychic defect, appearing in the first months and leading to total idiocy; weakness of limbs, even to complete paralysis; loss of sight, becoming complete blindness—change in macula lutea, and later atrophy of the optic nerve; marasmus and death, usually before the end of the second year of life; the disease attacks several children of the same family. Loss of hearing has been observed by the author in two cases. Microscopically the chief lesion in the cerebral cortex is found to be a lessened number and degeneration of the large pyramidal cells, hardly any remaining in normal condition. In the white matter the nerve fibres are less numerous than normal and no tangential fibres are present; the blood vessels remain normal and no evidence of any inflammatory lesion appears. Degenerative changes in the spinal cord are also present. The etiology of the disease is totally dark.

Angiomata of the Face successfully treated by Electrolysis.—Charles N. Dowd[2] describes two cases and submits photographs which show how excellent were the results obtained. In the treatment by electrolysis two or three needles were attached to the negative pole of a galvanic battery, inserted into the tumor and held there about a minute, the sponge which was attached to the positive pole being held on the skin nearby. About three to five small cells were ordinarily used, enough to produce a little white bubbling about the needles. The applications were made about once a month for nine months, only a single needle being used after the first two or three applications. Enough time was given between applications to permit the contraction of the tissues and the healing of the puncture spots. Electrolysis seemed the best method of treatment for these cases, because it was desirable to preserve the skin over the growths, and this could be best done in this way, as a number of vessels could be obliterated through a single puncture of the skin. This skin was atrophic and imperfect, but still was better than that which comes from skin grafting or through the process of healing over a granulating

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surface. Excision of the growth is of course a much easier and more rapid method than electrolysis, and should be used in those instances in which it is not important to save the skin over the growth. Caustics, coagulating injections, the actual or galvanic cautery, and ligatures are all more likely to injure the surrounding tissues than electrolysis, and are not so delicate and exact in their application. Massage should be used daily to relieve the tension of cicatricial contraction.

Appendicitis in Children.—William D. Porter[1] says that an examination of the cases reported within the last few years indicates that the disease is about as frequent from the tenth to the fifteenth year as in any equal period of adult life. In adults a physical examination is often less satisfactory than in the child, owing to excess of adipose tissue frequently encountered. Pain is not so well located by the child, but its intensity can be estimated more accurately. The child's facial expression and his complaints can be safely accepted as indicating the degree of pain. The author reports four cases.

The Basis of One-twentieth.—Victor Cox Pedersen, A.M.,[2] recommends the basis of one-twentieth in dose determination for children. The proportionate dose for any age, twenty years or less, is found by taking one-twentieth of the full therapeutic dose and multiplying the result by the age in integral years, or in years and fractions of years, or in fractions of years alone. The writer expresses a little surprise that so direct and plain a system has never been advanced before, but after careful research is convinced of the fact. He has probably omitted Abraham Jacobi's latest book from his bibliography.

Cardiac Arhythmia in Children.—J. Comby[3] states that if we leave aside cardiac affections and cerebral diseases which affect the heart beat, we can classify infantile arhythmia into six chief classes: 1. *The Arhythmia of Healthy Children.*—This is found from 12 months to 6 years, and is most marked during sleep. The child sleeps quietly, but the pulse is found to be irregular and intermittent, a series of rapid pulsations being followed by slower beats. This condition is not constant, but is apt to occur without cause, or else after fatiguing games or exercise. The author considers it merely a sign of a nervous diathesis and without pathological significance. In such cases, however, it is well to make a thorough physical examination; if heart and kidneys are sound and glycosuria excluded the diagnosis will be *physiological arhythmia* of childhood.

2. *Toxic Arhythmia.*—Belladonna, hyoscyamus, datura, opium, digitalis, and heart poisons in general may cause a slow and irregular pulse. Upon awakening from chloroform anesthesia the patient may have a slow, arhythmical pulse, with nausea, pallor, slowed respiration, and threatened syncope. Carbonic dioxide and other poisons may also cause arhythmia.

3. *Arhythmia of Gastro-intestinal Origin.*—The pulse is affected in all diseases of the digestive tract, from simple

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indigestion to acute gastro-intestinal septicemia. The intoxication in this case is endogenous.

4. *Arhythmia of Dyscrasia.*—The various dyscrasiæ, diatheses, arthritism (obesity, diabetes, gravel, asthma, migraine, etc.), may all be accompanied by cardiac arhythmia. It is also found in rachitis, anemia, chlorosis, intermittent cyclic albuminuria, etc.

5. *Arhythmia of Chorea and the Neuroses.*—It is frequent in chorea, even where there is no complicating endo- or pericarditis. As anemia frequently accompanies this affection, the arhythmia may perhaps be due to the dyscrasia. It is found in hysteria, in cerebral excitement, nocturnal incontinence of urine, and in epilepsy.

6. *Arhythmia of Convalescence.*—The tachycardia of acute febrile disorders is usually regular. After defervescence in typhoid fever, the slowing of the pulse, which may last from eight days to a month, is always accompanied by arhythmia. The same irregularities in the pulsations occur in convalescence from pneumonia and other cyclic diseases. After grippe the arhythmia is often attended by alarming symptoms which turn out to be *meningisme.* In diphtheritic intoxications the pulse is very irregular after the acute period, and this without any complicating myocarditis. Should the arhythmia be accompanied by pallor, nausea, vomiting, peripheric algidity, and syncope, it is probable that sudden death will occur. Pertussis is apt to be accompanied by arhythmia.

The prognosis of arhythmia is grave only when it is accompanied by pallor, nausea, vomiting, loss of strength, syncope—symptoms indicating bulbal paralysis. Essential, neurotic, psychic, or emotional arhythmia needs no direct treatment. Hygienic measures will suffice to correct the condition. Arhythmia due to exogenous intoxication is to be treated by suppression of the toxic agent; that due to auto-intoxication (constipation, diarrhea, etc.), by diet, laxatives, alkalies, antiseptics, and, in fact, the usual remedies for dyspepsia. Anthelmintics will cure the arhythmia due to intestinal parasites. The critical arhythmia of acute diseases demands no treatment and will disappear spontaneously. In case of collapse, alcohol or turpentine frictions, hypodermatic injections of ether, caffeine, sparteine, camphorated oil, artificial serum, inhalations of oxygen, mustard baths, an ice bag upon the cardiac region, and electricity (one pole on the precordial region, the other between the two heads of the sterno-cleido-mastoid) may be tried. These remedies are rarely called for, and cardiac arhythmia in childhood is seldom cause for anxiety.

Congenital Dislocation of the Shoulder Joint.—Charles L. Scudder* remarks that very little appears in medical literature to make the pathology of this deformity clear. He reports two cases. In one traumatism probably played an important part, as evidenced by swelling of the arm after difficult labor; such traumatic dislocations are apparently not very uncommon. In the second case the facts that labor was easy and that instru-

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ments were not used, that no disturbance of the arm was noticed during the first week or two after birth, that the child at no time carried the arm in a helpless manner but always used it, and that there was a lack of development of all the bones of the upper extremity, seem to the author to point conclusively to congenital deformity. The operative treatment of true congenital displacement of the shoulder joint cannot be formulated until the conditions existing are seen and handled in any particular case.

Congenital Fissures of the Palate, Some Modifications of the Operation for.— Thomas Fillebrown [7] describes some of the latest changes in methods, with some modifications of his own. The author believes that the lateral incision of the hard palate may be avoided, the nutrition preserved, and primary union uniformly obtained; that the tensor muscles need not be divided, and the activity and flexibility of the palate not restricted by the cicatricial tissue and the consequent disability of the muscles; also, that the necessity for cutting the pillars of the fauces does not exist; and that the arch may be contracted instead of enlarged, and thus the possibility of the perfect articulation made more probable. The author has adopted the use of silver sutures passing through pure silver discs to approximate the parts and bear the strain. The silver is used on account of its germicidal qualities. To relieve the tension in the soft palate he makes lateral incisions external to the tonsils, and has discarded the use of a guard plate. Obturators improve nearly every case, but they produce perfect articulation in only a small per cent of cases.

Crusta Lactea, or Infantile Eczema, The Treatment of.—W. P. Kistler [8] writes that this affection occurs alike amongst the rich and poor. In some cases the disorder is due to an inherited or congenital tendency to eczematous inflammation, and such cases are, as a rule, more difficult to cure than those in which the active cause can be demonstrated. In the treatment there are three indications to be fulfilled: (1) elimination by means of calomel in purgative doses; (2) alleviation of local distress by means of the benzoated oxide of zinc ointment or some equally soothing application; (3) the restoration of strength by correction of the malassimilation and restoration of the blood to its normal condition. Hygienic and dietetic measures are important.

Diarrheas of Children.—Langford Symes [9] finds the more useful classification of these disorders to be: 1, *The Dyspeptic*, and 2, *The Infective*. In nearly every case is to be found the administration of some patent food, with perhaps milk in various stages of decomposition from an apparatus impregnated with toxic germs, so that we can easily understand that fermentative changes are present in most instances. Dyspeptic diarrhea is often neglected until it has existed for a long time or has become alarming. It is produced by feeding which is either improper, excessive, irregular, or unwholesome, but fermentative changes from the toxic effects of bacterial organisms

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are present in most cases. Violent irritation may produce it, and one of the worst cases ever seen by the author originated in the inflammation of a vaccinated arm. The chief symptoms are restlessness, abdominal pain, frequent stools (grassy green, watery, often mucoid, always foul-smelling, sometimes profuse, as ten a day for a child 5 years old), thirst, sunken eyes, cold skin, and a pursed expression to the mouth. There may be vomiting, convulsions, twitching of the hands, sour smell from the mouth, collapse with a depressed fontanelle. Chronic cases are sometimes supposed to have "consumption of the bowels." In these cases we have profound emaciation, frequent stools which are very offensive and in which undigested food is passed with coagula of casein, fretfulness, edema, pains, and flatulence. There may be prolapsus recti. All the symptoms designated "spurious hydrocephalus" may be present before death. Infective diarrhea has only been lately understood, but is now known to be microbic. The profound nervous prostration, out of proportion to the amount of diarrhea, and the deaths of many after all discharges have ceased, strongly point to a definite poison. The complaint sometimes rages as an epidemic, but practically never occurs in breast-fed children. Sterilized milk is a safeguard. It is rarely seen in country districts. Neglect or deficiency of ventilation appears to be an important cause. The symptoms are remarkable and their severity appalling; the five most important are collapse and stupor, sudden vomiting, purging, thirst, and rapid wasting. Albuminuria is stated by Von Hofsten to be a characteristic symptom. The diagnosis can hardly be mistaken. Cerebral effusion may be simulated by a case now and then in the so called "hydrocephaloid" condition, if it is suddenly sprung upon the practitioner in this state, but they are very distinct. The chief opposing conditions are:

Hydrocephaloid state from diarrhea.	*Cerebral effusion (as in tubercular meningitis).*
Diarrhea.	Constipation.
No ocular paralysis.	Ocular paralysis and squint.
No rise of temperature.	Slight feverishness.
No headache.	Headache (if old enough to complain)
No tension or bulging of fontanelle.	Bulging fontanelle.
No rigidity.	Rigidity and retraction in many cases.
No retraction.	

The great danger is the collapse.

The treatment must be given on a true scientific basis. Recollect: Poisoning and fermentation from micro-organisms; indigestible and undigested food with deficient evacuation and a profuse and dangerous drain of water from the system.

1. GENERAL MANAGEMENT.—Here it is of the *first importance.* Procure rest. Relieve eruptions and irritations. Cleanse the mouth with glycerin of borax, diluted peroxide of hydrogen two per cent, or salol in glycerin.

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2. REMOVE IRRITATING PARTICLES OF FOOD.—The best drug is castor oil. A drachm is sufficient for a child 1 year old, and half a drachm for a younger infant. In chronic attacks five minims may be given every hour in the following combination:

℞ Olei ricini..... ℥v.
Mucilaginis acaciæ..... ℥xv.
Aquæ menthæ piperitæ.....ad ʒj.

3. DIET.—As this complaint is a diet disorder, therefore much care is necessary with the food. (*a*) *Change the milk at once*, except for infants at the breast, who should get nothing else, and this only at regular intervals. (*b*) *Diluted milk*, equal parts, or one-third pure water, breaks up the curd. Barley water makes the curd less firm. Soda water is excellent, if the child will take it; the effervescence smashes up the curd by the bubbles of air. (*c*) *Humanized milk* contains less curd and more cream. In feeding infants we should keep the proteids near one per cent. (*d*) *Peptonized milk* two parts, water one part. (*e*) *Condensed milk*, if good, is valuable. (*f*) *Sterilized milk*. This is free from poisonous germs, but may perhaps produce scurvy unless mixed with some fresh milk or whey. (*g*) *Pasteurizing* will not render tuberculous milk perfectly innocuous, but will render the milk of a mixed herd safe. Taste and smell are unaltered, microbes present are destroyed, chemically it is not seriously changed, and fermentation is stopped. (*h*) *Attend to the feeding apparatus*. A proper feeding bottle should have no tube, no angles, no indentations on glass, a wide mouth. It should be of transparent flint glass, easily cleansed, about eight ounces in size, and impossible to use by the child alone. (*i*) *Eliminate starch from the food*. (*j*) *Stop the milk altogether* in severe cases. As substitutes for milk, raw-meat juice is excellent; then we have gravy, gum arabic in boiled water, white of egg diluted, veal or chicken tea, white wine whey, pure fresh water, beef essence, beef pulp, clear soup, chicken jelly, yolk of egg beaten into an emulsion with hot water, strained and sweetened, raw-meat jelly.

4. ANTISEPTICS to allay fermentation. Thorough intestinal antisepsis is impracticable, for in fully sterilizing the bowel we may poison the child. We may use *calomel*. one-tenth grain every half hour until one grain has been taken. *Resorcin*, one-half grain to five grains, is active in the stomach and upper intestinal tract. It may be given with glycerin and cinnamon water and a carefully regulated dose of tincture of opium, or with bismuth carbonate and Dover's powder. Bismuth salicylate, benzol-naphthol, etc., etc., may be given. Lactic acid is said to check green diarrhea.

5. INTESTINAL IRRIGATION, to eliminate toxins, is well worth trying. It must be high irrigation with a soft-rubber catheter from a glass douche can. First wash out the rectum, then irrigate with a normal saline solution or boric lotion used

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warm. *Washing out the stomach* is recommended by Dr. Vaughan with sixty grains of bicarbonate of soda in a pint of water at 100° F.

6. SEDATIVES to allay excessive or abnormal peristalsis. Opium given carefully does no harm and is the best remedy. A child 3 months old might be given one-quarter minim of tincture of opium for a dose. A most excellent form is:

℞ Tincturæ camphoræ compositæ..... ℥j.
Glyceriti acidi carbolici..... ℥j.
Olei ricini..... ℥v.
Mucilaginis acaciæ..... ℥xv.
Aquæ menthæ piperitæ.....ad ʒ j.

Frequently.

7. RESTORATIVES for collapse. Fresh pure water to drink. Brandy or strong coffee, if indicated. Camphor, one-quarter grain to two grains, may be suspended in mucilage with glycerin. A warm bath with mustard is recommended. Subcutaneous injections of horse serum were tried in Germany in 1896. Out of fifteen children injected with from ten to twenty cubic centimetres under the skin of the thorax, four died. One per cent sterilized saline solution has been given hypodermatically, ten cubic centimetres at a time, with a Roux syringe. *Precautions against diarrhea* conclude this article.

Diphtheria.—Cleon Melville Hibbard [10] has a comprehensive article upon heart complications in diphtheria. The conclusions are as follows: (1) A rapid pulse rate in diphtheria is to be dreaded; death usually results when it exceeds 150. (2) A slow pulse—60 in children—is a sign often of serious heart trouble. (3) Irregularities in the pulse occur in about ten per cent of diphtheria cases and are generally significant of cardiac complications. (4) A systolic murmur at the apex is heard in about one case in ten, and its prognostic value depends upon the nature of the cause. (5) *A bruit de galop* in diphtheria is a most fatal sign. (6) After four weeks with no heart symptoms in diphtheria there is little probability of subsequent cardiac trouble in the convalescence. (7) All diphtheria patients who have tachycardia, bradycardia, irregular or weak pulse, a systolic murmur at the apex, vomiting, or any paralysis—especially palatal—should be kept in bed. (8) The most important element in the treatment consists of absolute rest in bed. (9) The vagus nerve in the fatal cases always had some evidence of degenerative changes. The weight of the heart was increased. (10) The cause of the death is usually cardiac thrombi, dilatation, or paralysis, produced probably by the toxin of the diphtheria bacillus.

Botticher [11] gives the results of the use of the antitoxin in the surgical clinic at Giessen, and finds that the total mortality in diphtheria has fallen 36 per cent under its use. Especially have tracheotomy cases been benefited, since the mortality has dropped from 75.6 per cent to 24.3 in the first and second years of life. In one-third of the cases tracheotomy was

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prevented (compared with earlier statistics); laryngeal stenosis disappeared in 17 per cent under the serum therapy. The use of the antitoxin prevented infection of the tracheotomy wound with diphtheria in all cases. The prognosis is better the earlier the serum is administered.

Jane L. Berry [13] gives an account of an epidemic of diphtheria in St. Johnsbury, Vermont, demonstrating in a marked degree its contagious nature and the value of immunization. A history of 90 cases is recorded. The serum was injected into 210 children who were exposed to the contagion, for preventive purposes. Not one of these contracted the disease. In almost every instance when the antitoxin was given in time in those cases in which the disease had developed, there was a prompt effect upon all the symptoms.

Epispadias, Technique of Operation for.—Bayer [11] describes the steps of an operation which he has devised, and which gave an excellent result in the case of a 4-year-old boy.

Facial Paralysis, One-sided Weeping with.—Embden [14] reports the case of a 4-year-old girl who recovered from a fracture at the base of the skull, but retained a complete paralysis of all three branches of the facial nerve on the right side. When crying, tears flow copiously on the left side, but none on the right, and the increased nasal secretion present on the left is absent on the right side. The functions of the trigeminus can be demonstrated as intact.

Forced Reduction of Lateral Curvature of the Spine.—Though many cautious surgeons hesitate to run the risk which apparently exists when attempts are made to tear asunder inflamed and ulcerated vertebræ, with the object of getting rid of the deformity in caries, Noble Smith [15] believes that no such risk appertains to manual force applied to scoliotic spines, and has always found that whatever position can be attained by apparatus can always be reckoned upon to become permanent in the course of time.

Hemorrhagic Cyst of the Spleen.—Baginsky [16] reports the case of a girl of 12 years whose illness began after a fall on the abdomen. A large tumor occupied the left hypochondrium, fluctuating above but solid below. Puncture showed the presence of a brown fluid, negative for echinococcus hooklets. Examination of the blood proved the number and proportion of corpuscles to be normal. Operation was performed because of the increased growth of the tumor and its influence on the general health. A large hemorrhagic cyst of the spleen was found, two litres of fluid (altered blood) being evacuated. Sections through the cyst wall showed dense connective tissue and normal spleen substance. The child recovered perfectly and was discharged in excellent health. The author refers to another case which proved fatal and occurred in a girl of 7 years. At the autopsy three cysts were found in the ductus choledochus, resulting from chronic inflammation and consequent retention of the bile. Both cases are to be looked upon as of extreme rarity in childhood.

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Hernia, Congenital Umbilical.—K. Hedman [17] describes a case of umbilical hernia in a new-born infant which was successfully operated upon. The hernia was as large as a small fist, and through its transparent sac showed that its contents consisted of liver and small intestines. Efforts at taxis having proved that the contents of the sac could be received into the abdominal cavity, an operation was decided upon and was performed as follows: A needle carrying a coarse silk thread was passed through the skin elevation at a height of about two inches, the thread being gradually tightened as the liver and intestines were gently replaced within the abdomen. The umbilical vessels of the sac walls were each separately ligated. The hernial sac was then incised from the outside, following the stitches of the silk suture. The operation was performed under chloroform narcosis and lasted an hour and a half. It was successful, but a bilateral inguinal hernia developed later.

Hydrencephalocele.—Ludwig [18] reports the case of a baby 3 months old born with a fluctuating tumor over the occipital region. Upon hard pressure the child became restless and cried, but no pressure symptoms resulted. Operation was done, the tumor tied off, and the stump replaced through the opening existing in the occipital bone. Recovery was rapid, but the hydrencephalocele increased in size after a time, remaining stationary at the time of writing.

Hysterical Skoliosis Cured.—Embden [14] reports the case of a girl 10 years old who developed a peculiar posture (bending the body forward and to the right) following pleuritic pain. After a year of this condition she was treated for three months by suspension, but unsuccessfully. Finally the faradic brush was applied under energetic suggestive influences, and cure resulted in one sitting.

Impetigo.—M. Sabouraud [8] holds that this disease is entirely due to the staphylococcus. The lymphatic diathesis, supposed to be so essential to its production, he believes to be the result of successive attacks of the affection rather than the cause of it. The treatment recognized in all countries as the most efficacious consists in the use of a solution of sulphate of zinc and of copper. Constant application of absorbent cotton saturated with the lotion constitutes the best form of the treatment.

Immediate Reduction of the Deformity of Pott's Disease of the Spine.—A. H. Tubby [19] advocates this procedure in selected cases, the following being considered unsuitable: (1) Those in which tubercle exists elsewhere. (2) Cases in which much wasting is present; the pressure of the apparatus which is used afterward is apt to give rise to sores. (3) Children who suffer from a cough or other respiratory trouble. (4) Cases in which abscesses are present. (5) Cases in which firm ankylosis has taken place. (6) Cases in which considerable alterations in the shape of the bony framework of the chest have occurred. (7) Patients over 20 years of age. (8) Cervical (for obvious reasons) and cervico-dorsal curves, it being very difficult in the latter to maintain the reduction

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on account of the leverage arising from the weight of the head.

Infanticide from Asphyxia by Suffocation.—E. Darbouet,[10] being called upon to decide upon the cause of death of a newly born infant, found a condition which he considers of some importance. *i.e.*, the presence of air at a certain degree of tension in the stomach, without any nourishment or trace of nourishment being present. There are only three possible sources of origin of this air: 1. It might have originated from ingested alimentary substances. 2. It might have resulted from insufflation in artificial respiration. 3. It might have come from a reflux of air from the lungs into the esophagus, the orifices of nose and mouth being stopped. The first theory was, in this case, not tenable, since there was no trace of any food and the intestine was in a perfectly flattened condition. No artificial respiration had been attempted. The third theory was evidently correct in this case, and the author calls attention to the fact as of value in cases of infanticide.

Infantile Scurvy.—Arthur M. Jacobus[11] reports a case of this disorder. In commenting upon infant foods and feeding he states as his belief that scurvy is mainly a constitutional disorder due to a slow or chronic starvation, resulting in profound anemia and other morbid processes in the animal economy, and due to a lack of foods in proper variety suitable to the digestive powers and requirements of the individual. In other words, that preserved or proprietary foods and condensed and sterilized milk lack certain natural chemic acids and substances necessary to the health of the child, and which cooking and sterilization seem to destroy, and which we are not yet in a position to isolate. The author believes that in filtered milk lies the solution of the difficulty. That is, in the absence of human milk, obtain the purest rich cow's milk which can be obtained; carefully filter it as directed by Seibert; dilute it freely and modify it as described by Jacobi, Rotch, and others, by the addition of barley, rice, or oatmeal, and lime-water, according to the necessities of each case, and a food is obtained which will be perfectly satisfactory. After 6 months of age, baked potatoes, beef juice, fresh fruit juices, vegetables, crackers, etc., should be carefully given as extra diet.

Laryngismus Stridulus with Permanent Tirage.—M. Soca[12] states that Trousseau's classic description of this affection has left a strong impression of a paroxysmal disease characterized by attacks of suffocation of greater or less intensity, but of only a few hours' duration. So that when there is permanent laryngeal dyspnea the practitioner is apt to think of croup or of almost anything except laryngismus stridulus. Yet cases of permanent dyspnea are by no means rare in the affection. The author reports several cases illustrative of his point. In the first the tirage lasted thirty days without the occurrence of any suffocative attack. In the second the disorder lasted forty-six days and in an attenuated form ten days longer.

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Croup, adenoid vegetations, affections of the bronchial ganglia, were all excluded.

Management of Children with an Inherited Tubercular Diathesis.—Joseph William Stickler[11] urges the necessity of requiring these children to exercise in the open air, even at the expense of the development of the intellect. When indoors, in cold and chilly weather, the child should have properly heated but well-ventilated apartments. Draughts should be avoided, and the temperature of the room should range between 65° and 75° F. The tubercular mother should never be allowed to sleep in the same room with her child; at least they should sleep, if in the same room, as far apart as possible. The first thing to be done for an infant whose mother is tuberculous is to secure a healthy wet-nurse. Weaning should be gradual and not accomplished during the hot months. Should artificial food become a necessity, great care should be observed in its selection and preparation. Inunctions of cod-liver oil may be given with excellent results. Cow's milk should be thoroughly sterilized.

Mastoid Disease: Treatment with Antistreptococcic Serum.—G. L. Kerr Pringle[12] reports a case in which trephining of the mastoid gave no relief. Thirteen days after the operation the serum was injected, and a second dose was administered five days later. All symptoms disappeared subsequent to the injections.

Milk.—In the course of some observations on the composition of human milk, Alfred H. Carter[13] gives the results of the analysis of 94 samples of human milk, with a description of his methods of analysis. The analyses show that wide variations in every ingredient of milk are met with. The widest variations are met in the fatty constituents, the largest amount being 8.82 per cent, while the lowest is only 0.47 per cent; proteids vary from 4.05 per cent to 1.02 per cent; sugar varies from 8.89 per cent to 4.38. Among 42 children under observation, 5 died; in each of the fatal cases, with one exception, the percentage of proteids was high, ranging from 2.05 to 4.02 per cent. In every case but 3 of the whole number in which the proteids exceeded 2.5 per cent, the milk disagreed. Variations in percentage of other ingredients seem to be much more readily borne. It was found that the proteids and ash decrease as lactation advances. and that sugar has a tendency to increase.

In a communication concerning some of the ways in which milk becomes pathogenic, Sheridan Delepine[14] gives the results of examinations of over 110 samples. Part of these were obtained from diseased cows, the milk being carefully drawn into sterilized vessels and sent unmixed to the laboratory. Other samples were collected at railway stations in sterilized bottles from cans containing mixed milk just arriving from the farm. A most striking outcome of the comparison between these two kinds of samples is that the milk of markedly diseased cows is much less often capable of producing irritation than the ordi-

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nary mixed milk supplied for consumption, and whilst 71 per cent of the latter are capable of producing severe infection, rapidly fatal, none of the milk obtained direct from the udder, in sterilized vessels, produced any affection of comparable intensity. Of the mixed milks, only 37.74 per cent were free from noxious properties, while 45.76 per cent of the unmixed milks showed the same quality, although 23 out of 24 of the latter had been taken from tuberculous cows and more than one-half of these had diseased udders.

Multiple Sclerosis in Childhood.—Leopold Stieglitz [25] pays especial attention, in an extended article upon this subject, to the differential diagnosis between this disorder and the following diseases: (1) Infantile cerebral palsy is either congenital or a disease of acute onset. In disseminated sclerosis the onset may be acute or subacute, but the morbid process, once started, continues to progress. Fresh outbreaks add new symptoms to the old. The history of a prolonged birth usually justifies the suspicion of infantile cerebral palsy. Optic atrophy is almost pathognomonic of multiple sclerosis. (2) In multiple cerebrospinal syphilis the same considerations which enter into play in adults hold good in the young. (3) Hereditary spinal ataxy shares with disseminated sclerosis a number of important symptoms. The main differences may be summed up as follows:

Friedreich's disease.	*Multiple sclerosis.*
Knee-jerks lost or diminished.	Exaggerated.
Eyes, pupils and fundus normal; ocular nerve palsies very rare.	Pupils frequently unequal, reflexes may be lost; discoloration of the optic discs; amblyopia; ocular nerve palsies common.
Speech halting and explosive, blurting.	Laborious, monotonous, and scanning.

(4) The question as to whether multiple sclerosis or hereditary cerebellar ataxy is present may arise in children as well as in adults. The close similarity of these two diseases is evident in the following comparisons:

Hereditary cerebellar ataxy.	*Multiple sclerosis.*
1. Gait, ataxic, groggy; feet wide apart.	1. (*a*) Spastic paraplegic; feet close together. (*b*) Ataxic, groggy; feet wide apart. (*c*) Ataxic paraplegic (*a*+*b*).
2. Station, Romberg's symptom absent.	2. Romberg may be present.
3. Arms, ataxy and some intention tremor.	3. Intention tremor; sometimes ataxy.
4. Oscillations and jerky movements of the head and trunk.	4. Oscillations and jerky movements of the head and trunk.
5. Exaggerated contractions of facial muscles during speaking.	5. Twitching in facial muscles during speaking.
6. Speech, hesitating and abrupt, or simply monotonous.	6. Laborious, scanning, or monotonous.
7. Eyes, jerky nystagmus; optic atrophy, contracted field of vision. The external recti muscles may be paretic or paralyzed.	7. Jerky nystagmus; optic atrophy, contracted field of vision; ocular nerve palsies.
8. Myotatic irritability increased, knee-jerks exaggerated, ankle clonus; contractures and muscular rigidity.	8. Myotatic irritability increased; knee-jerks exaggerated, ankle clonus; contractures and muscular rigidity.
9. Mental impairment in varying degrees.	9. Mental impairment in varying degrees.
10. Vertigo sometimes.	10. Vertigo common.
11. Vesical functions rarely affected.	11. Vesical functions more frequently disturbed.
12. Apoplectiform seizures do not occur.	12. Apoplectiform seizures occur in a small proportion of cases.
13. Heredity common.	13. Heredity uncommon.

(5) In certain cases of acute disseminated myelitis and enceph-

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alomyelitis following the acute infectious diseases, the symptoms of an acute or subacute multiple sclerosis are presented, more especially the intention tremor, the increased reflexes, and the scanning speech. The disease may ultimately form the basis of a typical chronic insular sclerosis with its recurrent attacks, etc. It may, however—and that is a point of importance—subside after a shorter or longer period and end in recovery. (6) Tumor of the brain will not be confounded with multiple sclerosis if all the symptoms of cerebral tumor are looked for and found. (7) Concerning the exclusion of hysteria, it may be briefly stated that the presence of ankle clonus, of nystagmus (unless congenital), or of optic atrophy excludes it at once. A case of hysteria simulating multiple sclerosis will show indisputable hysterical stigmata if they are only looked for.

Necrosis of Superior Maxilla.—Deutsch[18] reports the case of a 2-year-old boy with hereditary syphilis, who had a necrosis of the alveolar process of the superior maxillary bone, with extensive ulceration of the gums and absence of the teeth.

Pneumonia following Measles, Characteristics of.—Honl[19] has studied these cases carefully, and concludes that pneumonia, and not tuberculosis, is the most frequent cause of death in measles. The pneumonia may be due to the strepto-, staphylo-, or pneumococcus, or to the pneumobacillus, diphtheria bacillus, or bacillus pyocyaneus, alone or in combination with each other. The author has also seen a form of pneumonia resembling the cheesy variety, but in which no tubercle bacilli could be demonstrated. He would classify this either as a morbillous or pseudo-caseous pneumonia, or else assume that a form of cheesy pneumonia occurs without the tubercle bacillus.

Rachitis, Subperiosteal Hematoma in. Möller-Barlow's Disease.—Félix Brun[17] and Jules Renault[16] report 6 cases, and after a detailed study of the affection reach these conclusions: 1. That the clinical type described by Möller and Barlow cannot be considered identical with scorbutus nor with acute rachitis. 2. Its chief and constant symptom is a subperiosteal hematoma, and this should serve to differentiate it from all affections not accompanied by this symptom. 3. The subperiosteal hematoma is in the majority of cases merely the result of complete or incomplete subperiosteal fracture. 4. The predisposing cause of its production is usually rachitis. 5. The most frequent exciting cause is traumatism producing fracture. 6. Further observations will be necessary to determine whether hemorrhagic affections, as scorbutus or purpura, play any part as predisposing or exciting causes.

School Hygiene: Lighting of School Rooms and its Relations to Anomalies of Refraction.—J. A. Bach[20] discusses the subject under three heads—viz., quality, quantity, and direction. White sunlight is the normal stimulant of the retina, and any light which does not at least nearly correspond in composition with sunlight is defective by just so much and

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may become a source of fatigue. It becomes, therefore. a matter of no little importance to see that the surroundings of school buildings be as free as possible from colored reflecting surfaces, as each substance has its effect upon the light which it reflects. To preserve the light as pure as it entered, colored surface in a school room should be avoided. The darkest place occupied by any pupil should have at least sufficient light so that he may, without special effort on account of the insufficiency of light, read diamond type at a distance of at least twelve inches from the eye. No artificial light can ever equal diffused sunlight, and therefore children should be required to do their studying during the day if possible. The most favorable point in which light can enter a room is probably from above. Unfortunately this is impracticable, except on the upper floor. All light that is not reflected directly from the work can only be a source of annoyance. If it is direct light which strikes the eye, the retina becomes unduly irritated and cannot properly perform its function. Reflected light, as well, irritates the retina excessively and often causes a confusion of the letters on the printed page with the images of other objects from which it may be reflected. For this reason blackboards should not be placed between windows, and the surface of the blackboards must not be glossy, but rather a dull black to prevent strong reflections. Light coming from below the level of the head of the child is often worse than useless. The light should enter from such a direction that it strikes the work from above and from the left side.

Scrofulous Children, Treatment of.—Ritter[13] made animal experiments which proved that direct sunlight is an excellent blood regenerator, because it stimulates metabolism. Food experiments showed that animals die when proteids are withdrawn, even when the other food ingredients are given freely. Proteids, carbohydrates, and fats did not suffice for prolonged animal existence unless the mineral salts were combined with them, and the manner in which these are given is very important. Thus young vegetables, fruits, and salads were found to be the best method of administering the mineral salts and restore the animal to health and vigor. In all cases of weakly infants who show any tendency to rachitis or scrofula, the author has adopted the plan of giving them young vegetables and stewed fruit from the age of 10 months. Spinach is of especial value. Further experiments on animals proved beyond a doubt that cod-liver oil, rich in fatty acids, is by far the best fat that can be administered. Finally, lung gymnastics, with methodical rubbing and sun or sand baths, are of great aid in treating these children.

Superfluous Treatment of Nurslings.—Neumann[14] calls attention to the fact that a number of things may advantageously be omitted from the routine treatment of the newly born infant: the bath, the cleansing of the eyes and mouth (unless for some special reason). Cutting of the frenum for tongue-tie should not be done unless the child cannot protrude the tongue beyond the teeth, and lancing the gums for "difficult dentition"

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is quite superfluous. It is desirable to watch and supervise the feeding and hygiene of the infant to prevent disease, and to treat it, when present, at the earliest possible moment. Particular stress is laid upon the fact that the entire body must be examined in order to make an early, accurate diagnosis, otherwise many things will be overlooked.

The Thymus Gland and its Relation to Sudden Death in Children.—Rupert Norton [11] discusses the physiology and function of the thymus gland, and states that, after all cases are thrown out in which death had usually been due to some other condition, a few are left in which death may fairly be said to have been due alone to engorgement of the gland. In none of these instances has there been any careful histologic examination. This, and the fact that we know nothing about the functions of the gland, forces us to consider the gland from a merely mechanical point of view; in other words, can the thymus cause death simply by compression and obstruction of the trachea, blood vessels, and nerves, any one or all three? The author is of opinion that as yet the question is open to discussion and that it cannot be settled by clinical evidence alone, but must be solved by further study of the gland in its physiologic relation to the development and welfare of the infant.

Tonsillotomy.—M. Phocas [12] states that the indications for operation depend (1) upon the size of the tonsils, which must be sufficiently large to reach to or pass beyond the median line; (2) upon the duration of the affection and the non-success of medical treatment. The disease must be chronic, and the second inflammatory attack must have been a month or six weeks previous to the time that operation is decided upon. Astringent gargles must have been persistently tried. Tonsillotomy may be performed between the ages of 2 and 18 years. Toward adult life we may hope to have a spontaneous disappearance of the hypertrophy; and in young girls it is well to wait until menstruation is established before operating, as St. Germain noted that after puberty the tonsils were apt to diminish in size. The contraindications are (1) a bad general condition, as anemia, lymphatism, cardiac disorders; (2) infancy or the age of puberty; (3) recent inflammation of the tonsils, which causes danger of hemorrhage; (4) infected surroundings, especially diphtheritic.

The author prefers tonsillotomy to cauterization. Anesthesia by means of chloroform is dangerous, as the blood might get into the respiratory tract. When the operation is performed by means of the galvanic loop, however, this danger does not exist. In all other cases local anesthesia by means of cocaine, or in children over 7 years of age anesthesia by the bromide of ethyl, is all-sufficient. The dangers of tonsillotomy have been greatly exaggerated. In children hemorrhages are extremely rare. Holmes does not believe that it ever occurs in children. Out of a thousand cases operated upon, P. Guirsart does not recall more than three serious hemorrhages.

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Should such an event occur the wound must be touched with the thermocautery, or, if necessary, Hutin's method must be resorted to—viz., a polypus forceps placed astride of the commissure, one blade, carrying oak agaric (amadou), being pressed against the tonsil, the other resting outside against the angle of the jaw, the two blades being tied together to prevent slipping.

Tuberculous Bone Disease, Proper Surgical Treatment of.—The summary of an article upon this subject by Horace Tracy Cabot [28] is as follows: (1) Many observations prove that tuberculous disease of the bones and joints is caused by the tubercle bacillus. (2) Injuries of moderate severity favor the production of the disease. (3) In the bones the disease begins in the epiphysis, and is more extensive than appears on gross examination. Hence in operations for removal of the disease a considerable margin of apparently healthy bone must be removed. (4) Tuberculosis of the joints is generally, if not always, secondary to tuberculous disease in the epiphysis of an adjacent bone. (5) Abscess formation is due to extension of the tubercular process to the soft parts. The contents and wall of the tubercular abscess are different from those of infectious abscesses. Partial removal of the abscess wall is harmful. (6) Repair is caused by the formation of fibrous tissue, which replaces and partly encapsulates the tubercular tissue. Repair may be incomplete. Fibrous tissue may produce fibrous ankylosis, or the tissue may become ossified and lead to bony ankylosis. (7) Paraplegia in Pott's disease is rarely due to direct bony pressure. Usually the pressure is caused by tubercular peripachymeningitis. Rarely the pressure causes degeneration of the cord.

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ORIGINAL COMMUNICATIONS.

MERCUROUS IODIDE POISONING RESULTING FROM THE USE OF IODOFORM AS A SURGICAL DRESSING AND CALOMEL INTERNALLY:

WITH REPORT OF A CASE—RECOVERY.

BY

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THE incompatibility between the salts of mercury and the iodides is generally recognized and acted upon. The elimination of iodoform as sodium iodide and sodium iodate is a well-established fact. So far as I can learn, however, there are no reported cases of poisoning from the yellow iodide of mercury as a result of the use of iodoform as a surgical dressing and calomel internally. This is substantiated by the following extract from a letter from one of the leading therapeutists of this country: "The case you report, . . . so far as my reading goes, has no parallel in literature." This is my excuse for presenting the case somewhat in detail.

K. C., æt. 26; diseases of childhood, typhoid fever and pleu-

[1] Read before the Pittsburg Academy of Medicine, February 7, 1898.

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risy; puberty at 18; menses normal, except that they were suppressed for a few months after landing in this country some years ago; for last two or three months moderate menorrhagia and metrorrhagia. Present trouble began ten weeks before admittance to gynecological department of Mercy Hospital, by sudden onset of pelvic peritonitis involving the right iliac fossa. When first seen, rational symptoms of this condition existed to the extent indicated by its duration and by temperature of 103°. She denied the possibility of specific origin.

Physical Examination.—Hymen ruptured (bimanual and speculum examinations had previously been made). Uterus and adnexa were fixed in an exudate which was most marked on the right side, filling as it did the right iliac fossa.

The treatment consisted in absolute rest, forced feeding of liquid diet, ice locally, hot douches, stimulants and laxatives as needed. Within a few days temperature range was from normal to 99°, and a corresponding improvement in other respects was noted. Bimanual examination two weeks later showed a tender, fluctuating, adherent mass the size of a small orange in region of right ovary; left ovary slightly adherent; uterus adherent, though permitting of some mobility. Rest and forced feeding were persisted in till physical condition justified operation, which was done by Dr. X. O. Werder, October 10, 1896.

Ether; usual cleansing; curettement; median celiotomy, three inches; elongated, thickened, and inflamed vermiform appendix, and right adnexa (the seat of a large abscess) freed with difficulty, delivered, and removed in the usual way. A large oozing cavity was packed while the uterus and left adnexa were being freed. The uterus was fixed anteriorly to check oozing from its raw fundus. Right iliac fossa was sponged and packed with six pieces of ten per cent iodoform gauze, six inches wide and three feet long, having approximately an aggregate weight of five ounces, representing one-half ounce of iodoform.

Subsequent Course.—When the operation was completed the patient's pulse was 86, temperature 97½°. At the end of twenty-four hours, pulse 122, temperature 101½°; free serosanguineous drainage had occurred. At the end of thirty-six hours, mild, pleasurable delirium, pulse 130, temperature 100½°; no flatus passed up to this time and enemata retained. The progressive increase in pulse rate, mild pleasurable delirium, fluctuation of temperature, etc., were indicative of iodoform intoxication, and the gauze packing was replaced by a rubber

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drainage tube. There had been no expulsion of flatus; enemata had been retained; the abdomen was slightly distended, but soft and not tender. The possibility of sapremia or septic peritonitis was considered, and as a precautionary measure elimination and peristalsis were stimulated by one-grain doses of calomel every hour till effect. Seven were given. The effect was pronounced and called for prompt and energetic treatment. By the middle of the third day the patient was having bloody mucous stools at frequent intervals and accompanied by tenesmus. The mucus came away in great shreds resembling mucosa. There were more than twenty stools within twenty-four hours, despite the use of opium and other sedatives. The patient's pulse was now 158 and temperature 99½°. The bloody mucous stools continued three days, becoming progressively less frequent and profuse. The other symptoms improved correspondingly. The further progress of the case was uninterrupted except by a superficial stitch abscess which developed at the site of drainage some days after this tract was closed. Recovery was complete.

In April, 1897, I had occasion to give the patient three grains of calomel in divided doses, and a saline was necessary to produce a movement from the bowels. In December, 1897, three grains of calomel in divided doses produced two painless movements that were normal in every respect.

The following combination of events is worthy of note:

1. The use of an extensive intraperitoneal dressing of iodoform gauze representing about half an ounce of iodoform.

2. The development of symptoms of iodoform intoxication, showing the absorption of that drug.[1]

3. The administration, forty-eight hours after operation, of seven grains of calomel.

4. The occurrence of numerous bloody mucous stools at frequent intervals and accompanied by tenesmus.

5. The subsequent use of calomel without undue effect, showing absence of idiosyncrasy to that drug.

The question naturally arises, Was there any causal relation between these phenomena? The following facts led me to believe that such was the case, and I have subsequently found no reason to change that opinion: The absorption of iodoform as a dressing begins at once and is most rapid from a peritoneal surface, less so from other surfaces. It continues as long as iodoform is in contact with the absorbing surface. Elimination

[1] It may be objected that the rapid pulse, delirium, etc., resulted from sapremia. In that case the violent purgation is all the more remarkable.

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begins within an hour, and its products—viz., iodide and iodate of sodium—can be detected in all the secretions. Calomel is likewise rapidly absorbed, and elimination by all the secretions begins promptly. Hence, if the two are being absorbed at the same time, they must be carried by the same media and must come in contact within the tissues and in the reservoirs containing the secretions. When calomel is added to sputum, urine, or feces containing the products of elimination of iodoform, yellow iodide of mercury is formed.[1] In the foregoing case, granted the elimination of sodium iodide and iodate by intestinal secretions extending over a period of forty-eight hours; granted the retention of these products in the intestinal canal (for no movement had occurred and elimination is not complete for three days at least), together with the administration of seven grains of calomel by mouth, and the conclusions that the two drugs would come in contact and that the yellow iodide of mercury would result may be inferred. Add to that the fact that characteristic symptoms of the drug were marked, and the conclusions are confirmed. The facts as above given justify the premises, and the conclusions are legitimate.

In addition to the above facts experimental evidence was sought, but lack of facilities for accurate observation rendered the results of little scientific value. Hence only a brief summary is given. The first experiments were made in November. 1896, others in November, 1897. Eleven guinea pigs were used.

Group A.—Five pigs received one grain iodoform hypodermatically and one grain calomel by mouth twenty-four hours later. Four died within twelve hours. Postmortem examination showed violent colitis with extensive ulceration; small intestine slightly inflamed. Other pig killed; colitis, but not so violent.

Group B.—Three pigs given one grain iodoform; no deaths. Two killed thirty six hours later. In one, whole intestine normal. Other had had one grain iodoform and one-sixteenth grain calomel five days previously. Few small old ulcers in colon.

Group C.—Three pigs were given one grain calomel each by mouth. Two had had one grain iodoform each five days previously. These two killed at end of twelve hours; colitis and enteritis, but neither so marked as in Group A. Other pig died at end of a week; no postmortem.

[1] This fact is confirmed by private communication from the chemist to one of the leading Eastern universities.

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The experiments of M. Rummo and others, showing that iodoform is eliminated slowly, renders it possible, at least, that yellow iodide of mercury might have been produced in Group C. Further observations as to the effect of these drugs, separately and combined, will be interesting and of practical value.

The absence of literature on this subject opens an interesting field for speculation. Is this form of poisoning rare? The common practice of using extensive iodoform dressings and of using calomel as a laxative following operation renders it likely that numerous opportunities are afforded for the reaction which results in the production of the yellow iodide of mercury. Has it been found by experience that small doses of calomel suffice, as a rule, to cause free movements, and hence small doses are given? May not this observation have been based upon the effects of the more powerful drug? Does not the small amount of calomel used limit the amount of the yellow iodide of mercury produced, thereby lessening the probability of serious results? Is it not possible that in some cases, with mild symptoms of iodoform intoxication accompanied by slight enteric irritation following the use of small doses of calomel, the irritation has been attributed to the iodoform in compliance with the classification of Dr. Schede, of Hamburg, rather than to its true cause, the yellow iodide of mercury? Has it at times been attributed to an irritating enema? Has it ever been noted without an attempt at explanation? A satisfactory solution to these questions is earnestly to be desired.

524 PENN AVENUE.

CHORIO-EPITHELIOMA, THE SO-CALLED DECIDUOMA MALIGNUM.[1]

BY

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(With three illustrations.)

Within the past few years a considerable amount of literature has appeared in the German, French, and English medical journals on the subject of deciduoma malignum. But while well known and ably discussed in the medical centres of

[1] Read before the Pathological Society of Philadelphia, January 13, 1898.

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Europe, comparatively little is known about the disease in our own country, only two cases having been reported in America up to the present time.

The first author to describe the development of malignant disease of the uterus subsequent to delivery was Chiari,[1] who published in 1877 an account of three cases of supposed primary carcinoma of the corpus uteri occurring in woman, two of whom were under 23 years of age. All three cases developed and terminated fatally within six months after delivery.

This important paper attracted little attention at the time, although recorded in the work by Ruge and Veit on "Carcinoma of the Uterus," published shortly after.

Tibaldi,[2] Guttenplan,[3] and Meyer[4] a few years later reported malignant disease of the uterus developing soon after labor, in all of which the patients died; but it was not until the publication of an article by Sänger[5] in 1889, under the title of "Zwei Aussergewöhnliche Fälle von Abortus," that general interest was aroused in this newly recognized disease. Sänger remarked the presence of deciduous and placental elements as a characteristic, apart from all other uterine neoplasms, and designated the growth as a decidual-cell sarcoma.

In 1890 Pfeifer[6] reported a case of malignant hydatid mole, and in 1893 Sänger[7] drew still further attention to deciduous tumors of the uterus and contributed observations on the malignant character of their degenerations.

During the two following years very important contributions to our knowledge of malignant neoplasms developing after labor or abortion were made by Gottschalk,[8] Schmorl,[9] Chiari, Ruge,[10] Pestalozza,[11] Fränkel,[12] Marchand,[13] Bacon,[14] Williams,[15] Paviot,[16] Jeannel,[17] Löhlein,[18] Kussmann,[19] Klein,[20] Hartmann et Toupet,[21] Novi-Josserand et Jacroix,[22] Köttnitz,[23] Lebensbaum,[24] Schauta,[25] Tonnen,[26] Kuppenheim,[27] Superno,[28] Pesinelli,[29] Menge,[30] and Eden.[31] During the year 1896 still further contributions on this subject were furnished by Apfelstedt und Aschoff,[32] Lounberg und Mannheimer,[33] Morison,[34] Spencer,[35] Beach,[36] Durante,[37] Cazin,[38] Neumann,[39] Monod,[40] Van de Poll,[41] Kastrom,[42] Jones,[43] and Cock.[44]

The most recent valuable article on this subject is from C. Gebhard,[45] who reports three cases in detail (from one of which one of the cuts here presented is taken), and from which we will directly quote brief clinical data which are especially interesting from a pathological standpoint. After going carefully over the literature at our command we have been able to

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collect forty-five reasonably authenticated cases of the neoplasm under consideration.

Chorio-epithelioma, decidual-cell sarcoma, syncytial carcinoma, or deciduoma malignum, by all of which names it has been described, may be defined as a malignant disease arising in the body of the uterus, either attendant with or subsequent to pregnancy (originating probably at the placental site), and giving metastatic secondary growths in the lungs, lymphatic glands, brain, spleen, and other tissues and organs, advancing

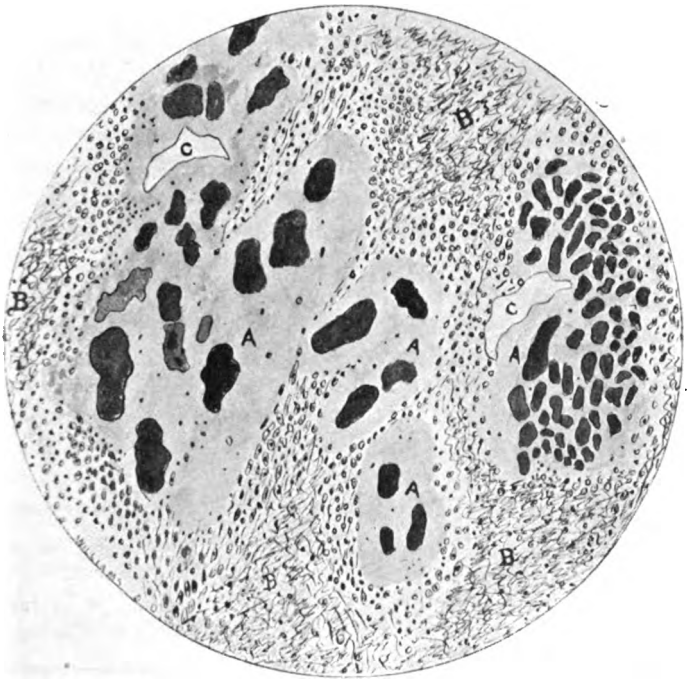


FIG. 1.—A, homogeneous protoplasm containing large, intensely stained nuclei; B, fibrin with leucocytes and small round cells in the meshes, separating the areas of malignant cells (A); C, vacuoles in the protoplasm.

with great rapidity and leading invariably to a fatal termination.

The reason for the varied nomenclature of this disease is due to the dispute as to its histogenesis. It was first supposed by Sänger, on account of the close resemblance which the cells making up the greater part of the neoplasm and the metastatic deposits bear to decidual cells, to be a malignant degeneration of the decidua serotina. And since the decidua is formed by the hyperplastic connective-tissue stroma of the endometrium,

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the name "decidual sarcoma" or "deciduoma malignum" seemed appropriate.

Subsequent investigations were conducted by C. Ruge,[46] Marchand,[47] and others here referred to, and the theory maintained which is now generally accepted, that the cells which were supposed to be decidual are in reality syncytial [1] (maternal epithelium) or fetal ectodermic (Langhans') cells which have undergone malignant proliferation.

There is, however, some likelihood that the growths reported

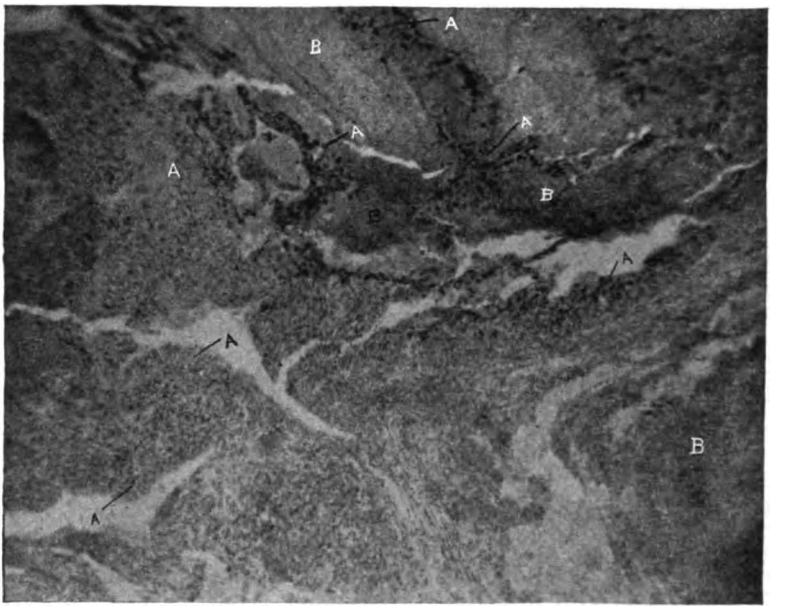


FIG. 2.—A, malignant chorio-epithelial cells; B, area of fibrinous reticulum.

under this title may have had histological variations and in some cases contained both proliferated Langhans' and syncytial cells, as claimed in one case reported; also that true deciduous cells were present in the cases reported originally by Sänger, as he still maintains, his tumors resembling the type of sarcomata. But in the majority of cases the malignantly proliferated cells so closely resemble the syncytium in every particular that it is impossible to deny their identity.

Since in this case the tumor has its origin in the epithelial

[1] It is a much-disputed point whether the syncytial cells are of fetal or maternal origin.

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covering of the chorion villi, and not from the decidua cells (as was supposed), the neoplasm is allied to the carcinomata rather than to the sarcomata; hence the name, now adopted, of chorio-epithelioma seems to be the better one.



FIG. 3.—A, areas of malignant chorio-epithelial cells; B, areas of fibrinous reticulum containing leucocytes and small round cells; C, chorion villus preserved—syncytial cells along the margin deeply stained.

As you well know, the ovum, on becoming attached to some point of the uterine wall, is enveloped by a fold of the endometrium, that part of the endometrium folded over the ovum being known as the "decidua reflexa," the portion between the ovum and the uterine wall the "decidua serotina," while

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the endometrium lining the remainder of the uterine cavity is known as the "decidua vera."

The villi of the chorion, covered by their single layer of ectodermic cells (Langhans' cells), then become embedded in the decidua serotina, which has upon its surface the single layer of ciliated cuboidal epithelium with which the entire uterine cavity is lined. These cells, according to the opinion of Ruge, are preserved, become firmly attached over the outer surface of the villi, and constitute the layer known as the syncytium. We thus have two layers of cells, epithelial in origin, between the fetal vessels of the chorion villi and the connective-tissue stroma of the endometrium, which latter are in fact the decidual cells of the serotina.

In the normal development of the maternal placenta the decidual stroma becomes differentiated into two layers—the inner layer, in relation with the syncytium, firm and compact, and the outer layer, loose and ampullary, containing rich blood sinuses. The syncytial layer soon expands, and, proliferating rapidly, forms a band of considerable width between the ampullary layer and original superficial epithelium of the serotina. At about the sixth week, or soon after, the blood vessels of the ampullary layer enormously dilate into this compact and proliferated syncytium, the tissue is entirely absorbed with the exception of the original band of syncytial cells, and the villi are left floating free in the maternal blood sinuses. As the fetal ectodermic cells are absorbed usually between the sixth and twelfth weeks of embryonic life, the chorion villi are now covered by but a single layer of epithelial cells, the syncytium.

It is, then, according to the opinions which we accept, in this syncytial covering of the chorion villi, either during pregnancy or from villous remains after labor or abortion, that these malignant neoplasms have their origin.

The clinical history in connection with these cases is of special interest. All cases recorded have developed either during pregnancy or immediately after labor or abortion.

Of the forty-five cases which have been collected, none have occurred in primiparæ, but each has developed before the menopause. Seven cases have occurred in women under 25 years of age and the majority in women under 30.

Forty-five per cent of the cases have developed subsequent to hydatid mole, showing that a decided etiological relation must exist between these two affections.

Bleeding, of an intermittent and gushing character, shortly

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after delivery or abortion, is usually a prominent symptom, although it may be entirely absent until metastases have taken place into other organs.

The os is frequently open. The uterus is large, soft, and boggy, and usually contains a soft, tumorous mass that can be distinctly palpated. This growth is of placental consistence, soft, friable, and easily broken down and removed by the finger.

The uterine wall is early invaded by the malignant cells and becomes soft and easily perforated.

Early metastasis and great malignancy are the special features of the disease.

In the case reported by Williams[15] metastasis took place into the tissues of the vulva within two weeks of delivery and before the development of any other symptom. Of the forty-five cases reported sixty per cent have given metastasis to and about the vagina. The next most common seat of metastatic deposit has been in the lung. In a number of cases recorded metastatic deposits have also been mentioned in the brain, spleen, kidney, stomach, ovary, broad ligament, intestines, diaphragm, ribs, bladder, femur, liver, or pancreas.

In the majority of cases which have proved fatal death has occurred in from three to six months.

All cases that have not been operated upon have died. Operations have been reported upon twenty cases. Of these, three died as an immediate result of the operation (within from four days to four weeks). Three others died within a period of six months from metastatic developments. The other fourteen cases have remained free from symptoms up to the present time, so far as can be learned.

A positive diagnosis of malignancy can be almost invariably made by microscopic examination of curetted materials from within the cavity of the uterus.

Since this is so, in consideration of the rapid and extremely malignant character of the growth, the great importance of curetting all cases which develop symptoms of intermittent bleeding after labor or abortion, and submitting the tissue to a competent pathologist for careful microscopic examination, is evident.

The microscopic examination of these tumors and metastatic deposits shows practically the same appearance, although somewhat varied in different cases. But in the majority the greater part of the tissue will be seen to be composed of a fibrous reticulum, presenting marked alveolar and cavernous structure

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containing cavities of various shapes and sizes filled with fibrin threads and free and organized blood. These are often separated from one another by bands of tissue which bear a close resemblance to decidual cells.

In this mass no trace is usually found of either blood vessels, lymphatics, or glandular structure. Careful examination shows the presence of apparently two varieties of cells. Individual cells, varying from round or polygonal to spindle shape, according as they are free or closely packed together, constitute one part.

Their size is very variable, and while some contain but a single nucleus, others may contain several, while still others may resemble the typical giant cell.

Their nuclei stain intensely, and they in all points correspond exactly to epithelial cells.

In other areas of the tumor, bands and masses of protoplasm, more or less extensive, are found, which contain large, irregularly shaped nuclei that take the stain intensely. These nuclei are deposited in a homogeneous granular protoplasm containing vacuoles, without any differentiation or boundary between individual cells. Thin bands or ribbons of protoplasm are also found, containing nuclei extending almost entirely across them, but with no line of separation whatsoever between the cells. This structure resembles precisely the syncytial layer which forms the superficial covering of the chorion villi. Williams,[4] of Johns Hopkins, is of the opinion that what appear to be individual cells in various parts of the tumor, giant cells, and cells containing several nuclei, are in reality simply cross-sections of more or less extensive masses of syncytial protoplasm containing free nuclei.

If this view be accepted, all varieties of the malignant tumor cells can be referred to a syncytial origin.

The fetal ectodermic cells, more or less bubble-shaped, can be differentiated from the syncytial cells by the fact that the outline of their cell protoplasm can be clearly defined and that their nuclei stain more intensely. That these Langhans' cells have also been found in metastatic deposits has been reported by Gebhard[5] and others.

To summarize briefly, the most prominent histological features of the specimens here presented may be said to be:

1. A fibrous reticulum resembling organized blood, in the meshes of which are large spaces containing blood and fibrin, but no glands, blood vessels, or lymphatics.

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2. Bars, bands, and islands of syncytial and Langhans' cells between the blood spaces and in masses throughout the growth.

3. Vacuoles in the syncytial protoplasm, and in some cases distinct chorion villi.

4. A small round-cell infiltration in the fibrous reticulum and also in the homogeneous protoplasm is also conspicuously present.

112 SOUTH EIGHTEENTH STREET.

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ACCIDENTAL PERFORATION OF THE UTERUS.

BY

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In the *Centralblatt für Gynäkologie*, No. 42, O. Beuttner describes a "Peculiar Behavior of the Uterus during the Introduction of Instruments." In one of his cases, the patient being under the influence of an anesthetic, a sound was passed to a depth of seven centimetres. On resorting to the use of Schultze's dilators he found that, without any special force, he could introduce one to a depth of thirteen or fourteen centimetres. After its removal he found, by means of bimanual examination, that the uterus could not possibly be longer than seven centimetres. He repeated this series of observations four times consecutively. After curetting and injecting the uterine cavity with a bichloride of mercury solution (1:10,000), he inserted gauze in the cervical canal and a pessary in the vagina. The patient made a normal recovery.

Two months later Beuttner dilated a second case under anesthesia, using the same instruments, and found that his dilator entered to a depth of eight centimetres. A sound was now gently introduced and reached a depth of twenty centi-

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metres. Again resorting to a larger instrument, he found it could not be passed further than a distance of eight or nine centimetres. This experiment was repeated four times with the same result. Bimanual examination showed the uterus to be small and anteflexed. The uterus was curetted, the instrument passing only to a depth of eight centimetres. This was followed by irrigation, gauze drainage, and trachelorrhaphy. With the exception of a mild mercurial intoxication the patient had an easy convalescence.

Beuttner discards the possibility of a perforation of the uterus in these cases, and is inclined to entertain a possible elastic condition of the uterine tissue provoked by certain instruments. Ahlfeld (ibid., No. 47) thinks a sound occasionally passes an abnormal depth when it slips into the Fallopian tubes, and, in corroboration, cites a case from his own practice. Courant, however, ridicules the idea of anything short of perforation having occurred (ibid., No. 48). During curettage, in a case of intraligamentary fibroid of the uterus, a sound was passed to a depth of twenty to twenty-five centimetres. On the following day, owing to persistent hemorrhage, laparatomy was done, when a rent on the posterior surface of the uterus was discovered, with a tablespoonful of dark liquid blood in Douglas' cul-de-sac. On moving the uterus fresh blood appeared in the rent. Courant believes from this experience and that of other able gynecologists (including Fritsch) that, without undue force, the uterus may be in such a pathological state as to be very easily perforated. Such a defective condition is most apt to be present after imperfect involution or after infected puerperal cases. Or such atrophic changes in the uterine wall may result from constitutional diseases or tumors. Thus, also, there may be in every uterus certain weak spots which give way to pressure with instruments from within.

Perhaps a description of a similar experience may be of interest in this connection.

About the beginning of December, 1897, I was visited at my clinic by a poor woman with an immense rectocele, about the size of an orange, which caused her great distress and incapacitated her from attending to her ordinary housework. She gave me the following brief history:

Mrs. F. G., age 37. She began to menstruate at 15; four-weekly type, painless, moderate in quantity, and lasting four to five days. She married at 17, never aborted, and gave birth to ten children. Six years ago, after suffering for years from

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a ruptured perineum and large rectocele, she submitted to an operation for its relief and was perfectly well. For five years she avoided pregnancy, but in spite of her precautions she became pregnant last year, and during the delivery of her child she was again torn worse than ever.

The patient a large, flabby woman, had visited numerous clinics and physicians, and was told everywhere that her only relief was to be had in another operation. After a careful examination, during which the uterus was found to be large, heavy, and the seat of chronic endometritis, the adnexa normal, and the posterior vaginal wall protruding in a large globular mass—especially on coughing—the patient was again told that she needed to be operated. To this she consented readily on condition that she would be guaranteed against subsequent pregnancy. For, she argued, another child meant another operation, and as she had had ten children she was not urgently in need of more. After satisfying myself that her husband held the same views, and after carefully considering every aspect of the case, I concluded to perform at one sitting curettage, double salpingectomy, and colpo-perineorrhaphy.

On December 13, 1897, under ether anesthesia, the cervix was dilated with the ordinary Wylie dilator and found to tear instead of stretch. Without any especial difficulty, and with the gentleness acquired from a considerable experience, I introduced a curette and found that it entered on the right side posteriorly to a depth of four and a half inches. I quickly completed the curettage, irrigated the uterine cavity with bichloride of mercury solution (1:10,000), and packed with gauze. I stated to a number of colleagues present that I had either punctured the uterine wall or entered a Fallopian tube. Through an anterior vaginal incision, after pushing the bladder upward, I brought down the left Fallopian tube and exsected between two catgut ligatures about one-half inch. After touching the stumps with pure carbolic acid I repeated the process and exsected about one-half inch of the right Fallopian tube. I decided now to satisfy my mind in regard to a possible uterine puncture. On passing my finger behind the uterus I felt something rough, like gauze, quite low down. I delivered the uterus and was able to demonstrate to my visitors the rent in the uterine wall through which the gauze protruded. The tear was probably a quarter of an inch long and seemed to be bleeding quite profusely. After cutting with scissors the protruding gauze and pushing the remainder well

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into the uterine cavity, I closed the rent with several catgut sutures and fastened the fundus of the uterus to the vaginal incision. I next proceeded to repair the perineum and narrow the posterior vaginal wall after the usual method. My friend Dr. A. E. Isaacs looked after the case, as I left town on the following day, and on my return in a fortnight I found the patient ready to sit up in bed. At no time had the temperature exceeded 101° F., and on January 9, 1898, the patient was discharged cured.

This is not the first case in which I have punctured a uterus, although it is the first case, I believe, in which any operator has been able at the time of the accident to inspect and repair the rent. In speaking with colleagues who have operated extensively I find that such experiences are not uncommon. And I do not refer to clumsy and bungling operators, but to those who are known to use care and gentleness in their work. In clean and aseptic surroundings such an accident is of little moment. In one case which I recall in a puerperal woman I injected morphine hypodermatically and applied an ice bag to the uterus. She made a perfect recovery. It is a good rule in these cases to omit intrauterine irrigation and packing. Although in my case I delivered the uterus and repaired the rent, I do not believe that this would be called for under ordinary circumstances. In fact I should rather advise against it if there was an element of possible sepsis in the case.

162 MADISON STREET.

LACERATED AND PUNCTURED WOUNDS OF THE GENITAL TRACT.[1]

BY

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(With plate and six illustrations.)

LACERATIONS and punctures of the genital tract are of much importance and interest. They may be slight and unimportant or extensive and grave.

It is my intention to confine these remarks in the main to my

[1] Read by invitation before the Section of Obstetrics and Gynecology of the Buffalo Academy of Medicine, January 25, 1898.

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own experience in connection with this class of injuries, and not to bring before you a classical survey of the literature of the subject.

Injuries of the Perineum.—The perineum suffers from injuries from within and injuries from without. I have not seen many of these injuries from without and conclude that they are somewhat rare. The most extensive injury I have seen was that due to a fall on a sharp portion of a bicycle, by which a portion of the external genitals was torn and the tear extended upward beneath the pubic arch above the erectile tissue near the clitoris. As a consequence the patient bled very profusely. She was immediately removed to the hospital and made an easy recovery after a couple of weeks.

Instances of severe laceration of the perineum from the goring of cattle, from falls on sticks and broken chairs, pitchforks, from contact with nails in sliding down boards and balusters, are on record.

Two of my confrères in Toronto saw a perineum completely lacerated into the rectum as a consequence of a first coitus. I have seen some extensive tears of the hymen, and on one occasion was forced to apply two or three ligatures to arterial twigs that were torn through during a first coitus. But such injuries to the perineum as a consequence of marriage are of rather rare occurrence. The lacerations that occur in the perineum are usually the result of parturition.

Some remarkable cases have been recorded in which one foot has come through the vulvar opening and the other has gone backward and protruded through the anus during the delivery of a footling presentation. Another case has been recorded in which the head was found pressing down on the perineum and the hand and the forearm were protruding through the anus. I have never seen such conditions. I have seen a child delivered through, and not over, the perineum.

Cases of tear through the sphincter have been somewhat frequently met with in my practice. Some years ago, when doing a general practice, I tore through the sphincter ani and through the anterior rectal wall while delivering a child that was presenting in the occiput-posterior position in a narrow pelvis. The head was grasped by the forceps, a greal deal of traction was required to cause it to engage, and while this traction was being applied it suddenly slipped past the obstruction and tore everything in its downward progress. With nothing but lamplight and the assistance of an old woman, as the case was a

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few miles in the country, with an ordinary surgeon's needle and some sewing cotton I repaired the damage and had a perfect result. Union by first intention took place, and by the end of three weeks the patient's perineum was in as good a condition as ever. This result was not attained, however, without careful paring of all the bruised and blackened tissues and a thorough irrigation of the parts with water before the application of the stitches.

In another case I was called to see the wife of a physician living five or six miles in the country, and when I arrived I found that the doctor had delivered her with forceps and that she was torn four or five inches into the rectum. After careful irrigation and careful removal of all bruised and blackened tissue, I stitched up the tear in the recto-vaginal wall and brought the sutures out through the rectum and then repaired the perineum in the ordinary way, and the wound healed by first intention. At the end of three weeks the sphincter ani was so firmly united that I was enabled to pass a rectal speculum to dilate the sphincter and allow me to remove the rectal sutures.

I have operated on a large number of cases that have suffered from incontinence of feces for years. In one patient this incontinence had been going on for eighteen years. This was the worst laceration I have ever seen. It was necessary, in performing the operation, to isolate the rectum from a mass of cicatricial tissue in order to repair the old rent in its anterior wall. An enormous surface was denuded and the parts were then carefully brought together. Notwithstanding all the care exercised a leakage occurred, fecal matter escaped into the anterior portion of the wound, and septic infection resulted. For some days I was afraid that the patient might lose her life as a consequence, but by careful douching and by the removal of one or two stitches I was enabled to curtail septic absorption and ward off this danger. The wound healed by first intention throughout part and by second intention throughout the rest of its extent. The patient has now perfect control over the bowel and has a new vaginal orifice, something she has been doing without for eighteen years. She is restored to comfort. Operation had been attempted on two previous occasions by other surgeons, but they had failed to obtain union.

While this patient was hanging between life and death I reproached myself for not having performed colotomy before attempting the repair of the rectal tear. The performance of

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colotomy under such circumstances is something that should be considered.

I operated on another case that had been operated on three times before. The tissues had been pared away so that there was very little left to deal with. As a consequence it was necessary to make subcutaneous incisions in different directions to produce relaxation of the parts. Even then I was afraid that owing to the tension the stitches would not hold. They were passed very deeply and tied tightly, and the knees kept bandaged together. Much to my surprise the wound healed by first intention, and the patient now has complete control of the sphincter.

It requires very little union of tissue over the front of the rectum to give control of the lower bowel. For such extensive tears I am satisfied that the flap-splitting operation offers the best chances of success: firstly, because there is no loss of tissue, and even if the operation fails there is but a small amount of scar tissue left on the sensitive submucous tissues; and, secondly, because the stitches can be left in for such a length of time that if union does not occur by first intention a very good union will be obtained by second intention and the operation will prove a success.

Lacerations and Punctures of the Middle Portion of the Vagina.—In considering the question of lacerations in the vagina it should be remembered that tears of the lower portion of the vagina have a tendency to implicate the perineum, while tears of the upper portion of the vagina have a tendency to implicate the cervix uteri. It is my opinion that these tears in the vagina occur more frequently than we think, judging from the number of cases I have seen in which large scars were left from old tears. Such scars are to be found chiefly in the upper portion of the vagina in the neighborhood of the cervix.

Lacerations and punctures of the middle portion of the vagina are rare. I have never seen a puncture of the middle portion of the vagina. I have seen lacerations as a consequence of the use of the midwifery forceps, and, in one case, as a consequence of the passage of the unprotected fetal head after the performance of craniotomy by a neighboring physician. A cut was made in the vaginal wall, I believe, by the sharp fetal bones. The patient died. I consider that the operation of craniotomy in this case was very unskilfully performed. I have performed the operation a number of times and have noticed the care required in the extraction of the head

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to prevent laceration of the maternal tissues by these sharp bones. Such tears are not necessarily fatal *per se*. It no doubt frequently happens that the vagina is slightly torn during delivery and that the tear is entirely overlooked. During the performance of craniotomy it is advisable to leave the scalp as intact as possible, so that the bones may have a soft covering. Stripping back of the scalp should be avoided.

There is nothing that will prevent lacerations of the middle portion of the vagina (and, indeed, laceration of other portions of the genital tract) by the midwifery forceps as much as proper instruction during our student days. Nothing has helped me so much in avoiding traumatism to these delicate structures as the practical instruction I received on the cadaver while a student at Vienna under that fine old teacher, Carl Braun von Fernwald, and his assistant, Dr., now Prof., Pawlik. In these demonstrations each student had actual experience in the application of the forceps through the maternal soft parts, and he was guided during the manipulations by instructions from a trained teacher. I have seen many a mother torn by these useful adjuncts to our professional armamentarium. They are deadly weapons in unskilled hands.

As a consequence of tears of the vagina, either in its middle or upper portions, a subsequent narrowing may take place, and this narrowing may be of considerable importance. The vagina may be so narrowed that coitus may be rendered almost impossible and future labors extremely dangerous.

Rupture of the middle portion of the vagina is not as fatal as rupture of the upper portion, and neither of them is as fatal as rupture of the uterus. The term applied to these ruptures is colporrhexis, a name given to express the condition by Hugenberger.

Treatment of ruptures in this portion of the canal will depend upon the symptoms present. If there is hemorrhage the indication will be to stop it; if there is an invasion of sepsis the parts must be kept cleansed; if neighboring organs are implicated and the rectum or bladder is torn into, it must be repaired.

Lacerations and Punctures of the Upper Portion of the Vagina.—Puncture of the upper portion of the vagina is usually occasioned by an attempt to produce miscarriage. Sharp and unresisting instruments are used and the point is forced upward through the vaginal wall into the surrounding tissues. I have one such case under my care at present. The

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patient went two days over her menstrual period, and, being a widow, was very much concerned about the matter. She was admitted into my service in one of the city hospitals, suffering from profound septicemia. I found no thickening in the pelvis, nothing to indicate inflammation in the neighborhood of the uterus, but on inspection a small grayish slough was found covering a perforation in the posterior vaginal wall behind the cervix. The patient is very seriously ill, suffering from septicemia. No doubt absorption has taken place through the veins and the bacteria have found their way into the systemic circulation.

I operated on one patient who had passed a pen handle up through the vaginal vault to the left of the cervix. She was suffering from an acute general peritonitis. On opening the abdomen it was found to be full of flocculent lymph with angry, reddened intestines and all the evidences of an acute septic peritonitis. The tubes and ovaries were both inflamed, and swelled to about three times the normal size as a consequence of the inflammation. There was no pus to be found in either tubes or ovaries. The patient died. As usual, she denied any interference with herself to the family physician, but, when cornered by close questioning, was forced to admit to me that she had injured herself in the way mentioned.

These injuries in the vault are usually to be found on the left side, owing, I think, to the fact that the patient uses her right hand in introducing the instrument. The instruments are more frequently passed through the vaginal vault than through the uterine wall.

It is rather curious that such small punctures should give rise to such grave symptoms, even if the instruments used are not clean. The reason why these instruments are forced through such a resisting structure is that the patients are rendered desperate by their condition and are determined to rid themselves of the products of conception at any price. It is difficult for many of them to find the cervix uteri, and still more difficult for the untrained hand to pass an instrument into the uterine cavity.

Lacerations of the upper portion of the vagina are usually due either to the extension downward of a tear of the cervix as the consequence of the use of the rapid dilator, or from manipulations with the hand introduced into the vagina, or an extrusion of the fetus through it. I have seen laceration through the cervix and through the vaginal wall to the peritoneal covering

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occur in my own hands as the result of rapid dilatation of the cervix uteri with a Goodell dilator under deep anesthesia. The patient recovered without any bad symptoms, but not without causing a great deal of anxiety. Such accidents are rare, but may occur in the hands of the most skilful operator in spite of all the precautions and all the care that he can exercise.

The lacerations that occur as a consequence of child-bearing vary in their extent. I have seen scars left by old lacerations that evidently produced very few symptoms at the time of injury. A rough attempt to replace a prolapsed vagina has produced its rupture. A patient has been known to rupture her own vagina in this way. The rapid delivery of the head, especially where this rapid delivery is occasioned by the use of forceps, is liable to produce rupture of the vagina. Pathological changes in the vaginal walls themselves assist rupture. A stenosis of the vagina, above which there may be a thinning of the tissues, will be liable to produce rupture, and ruptures are liable to occur through cicatrices, firm and non-elastic, left from previous tears. Rupture of the vagina has resulted as the consequence of an attempted inversion of the uterus. Some other curious cases are cited. One, for instance, in which ascitic fluid so distended the cul-de-sac of Douglas and pushed the vagina downward that it tore, and a retroverted uterus with intestines was forced through the opening. In such conditions the vaginal tissues must be friable and unhealthy. The bursting of a hematoma that may follow labor must not be mistaken for rupture of the vagina. In such a case the diagnosis can be made by the absence of prolapsed intestines. It will also be impossible to pass the hand up into the abdomen.

I have removed some very large fibroids from the vagina. On one occasion I found it necessary to divide the fibroid into two halves before it could be delivered from the vaginal orifice by means of the midwifery forceps. There can be no doubt that if these manipulations be rudely carried out the continuity of the vaginal walls will be endangered. Such manipulations must be undertaken with a great deal of care. Fatal rupture of the vagina during coitus has also been recorded.

I have recently had one case, reported to the Toronto Medical Society two weeks ago, of laceration of the posterior wall of the vagina without any laceration of the cervix uteri, and extrusion of a full-time fetus through the tear into the abdominal cavity. The case was as follows:

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The patient suffered from a pendulous abdomen (Figs. 1 and 2). This pendulous condition was due to an extrusion of the intra-abdominal contents through separated recti muscles. The patient had arranged to have an old woman attend her. On a previous occasion a doctor who attended her stated that the uterus almost reached to the knees when she stood up. The pains were very severe, of a strong bearing-down character. While she was bearing down and pulling hard on the hands of

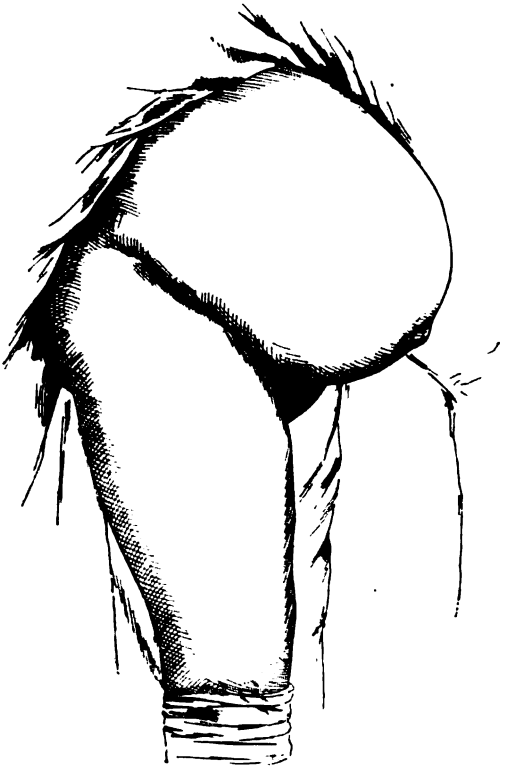


FIG. 1.

her attendant everything went back and the pains ceased. They then waited for some time for the return of the pains, and, becoming anxious, sent for a physician, Dr. McKenna, of our city, who on his arrival found the patient moaning and complaining of a fixed pain at a point about three inches to the left of the umbilicus. On examination no fetal part could be discovered, but high up the finger touched something that felt like placenta, and it seemed as if this was loose and unattached.

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The fetal parts could be plainly felt by external palpation, and more plainly than usual. There was complete absence of shock. Thinking that there must be a rupture of the uterus, he sent for another physician, Dr. McKeown, who on his arrival made an examination and found the child's head presenting, with a tumor to the front and right side of the abdomen that felt much like a fibroid (Fig. 3). The placenta seemed to be hanging down in front of the child's head, and it was supposed that

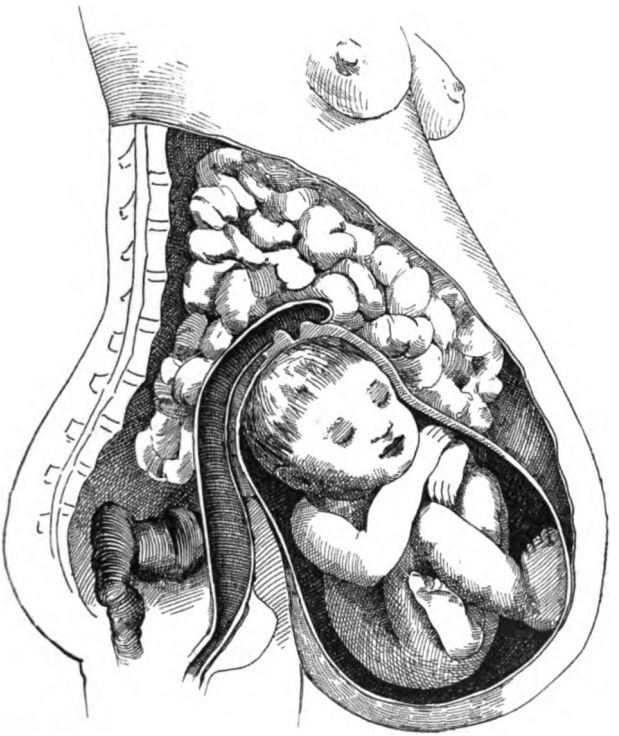


FIG. 2.

perhaps this was a case of placenta previa, though the absence of hemorrhage was difficult to account for. The hand was passed in under an anesthetic, a foot was reached, and the child turned and delivered. After the child had been drawn down the portion that felt like placenta was examined and found to be intestine. The doctor concluded that rupture must have occurred, and felt uneasy lest during his manipulations he might have been the innocent means of inflicting the trauma-

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tism. As a consequence the patient was immediately removed to the hospital and I was summoned.

The tumor to be felt on the right side was discovered to be the uterus, empty and contracted. The mass hanging down felt very much like placenta, but, owing to the irregularity of the attachment and the inability to surround it, I concluded it must be a "bunch" of intestines. By drawing this down to the outlet of the vagina I found a portion of the rectum presenting. Owing to the fact that the appendices epiploicæ were

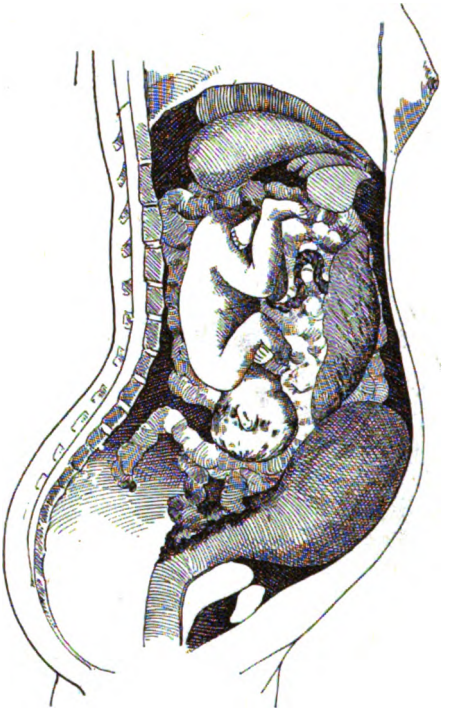


FIG. 8.—Rupture of vagina during labor, with extrusion of fetus and placenta into peritoneal cavity.

considerably enlarged by a deposit of fat, and that the wall of the intestine itself was altered as a consequence of the pregnant condition of the woman, it was impossible to distinguish this portion of bowel from placenta by the sense of touch. The patient was not collapsed, pulse was about 120, and there was no excess of hemorrhage. I removed the placenta from the neighborhood of the liver and decided to perform immediate celiotomy.

The patient was prepared, abdomen was opened, and the

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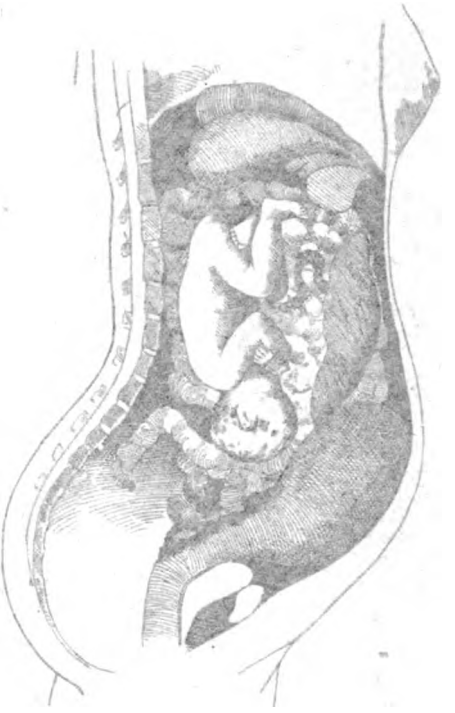


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—RUPTURE OF POSTERIOR WALL OF VAGINA DURING L

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considerably enlarged by a deposit of fat, and that the ... the intestine itself was altered as a consequence of the conception of the woman, it was impossible to distinguish ... portion of bowel from placenta by the sense of touch. ... patient was not collapsed, ... was about no excess of hemorrhage. I removed the neighborhood of the liver and decided to perform ... colloteray.

The patient was prepared, and ... was opened ...

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ROSS—RUPTURE OF POSTERIOR WALL OF VAGINA DURING LABOR.

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intestines were carefully drawn up out of the enormous rent involving nearly all of the posterior vaginal wall (see plate). Gauze was packed in to prevent subsequent hernia of the intestines, but it was found that this could not be prevented without the use of a very large quantity of gauze. Owing to the separation of the recti muscles, each effort to vomit had a tendency to force the uterus out through between the muscles and to allow the intestines to drop down. I found the tear was extensive, extending transversely across and separating the vaginal tissues from the cervix uteri throughout one-half of its extent. The cervix uteri was not torn. The edges were so bruised and blackened and friable that I concluded that it was best to ligate the remaining portion of vaginal tissue still attached to the uterus and to remove the organ. This was done in a few minutes, care being taken to avoid injury to the ureters. The uterus was soon removed. The ligatures were drawn down into what remained of the vagina, together with a rope of iodoform gauze. A funnel-shaped cavity was formed, lined on its upper surface by peritoneum, and into this the intestines sank. It was thus quite easy to prevent hernia of the intestines into the vagina. The abdomen was thoroughly washed out, but it was found impossible to remove all the meconium and vernix caseosa from the intestines. The patient lived for thirty-six hours, and died of rapid septic peritonitis.

On postmortem examination the kidneys and ureters were removed entire. The ureters were fully an inch to an inch and a half away from the nearest ligature and were uninjured. General septic peritonitis was found. There was not much blood found in the abdominal cavity at the time of operation.

Such cases are rare. These tears are found about as often on the anterior as they are on the posterior wall. There are very few cases in which the uterus is completely separated from the vagina, but such have been reported. It is stated that these ruptures are more frequently met with in primiparous than in multiparous women; but it must be remembered that there is a larger number of labors represented by multiparous women than by primiparous women, and therefore ruptures of vagina and uterus should be more frequent among the multiparous than among the primiparous.

There is no doubt that dystocia may be produced by prolapse of the uterus through the anterior abdominal wall. I had one patient, whose photograph I show (Figs. 4 and 5), who suffered from separation of the recti muscles, and when

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pregnant the uterus hung almost to the knees. She had very difficult labors on several occasions, and I agreed with her physician when he advised the production of a miscarriage on three or four occasions. On one of these occasions, after she had had a terrible labor some three years before, we decided to let her come to full time and to send her into the lying-in hospital under one of my confrères. Notwithstanding the fact that the uterus was bandaged back by a firm compression bandage



FIG. 4.

into the abdominal cavity, it was only emptied after a great deal of difficulty. The case I have just recorded, in which this terrible laceration took place, shows that it is dangerous to allow women with this condition to bear children without regulating the direction of the expulsive forces by means of a firm compression bandage.

There is only one book in which I find it mentioned that spontaneous and artificial rent of the upper posterior portion of the vagina is especially liable to occur in case there is a pendu-

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lous abdomen that permits the anterior displacement of the uterus. This fact may be mentioned in other works through which I have not looked. In the work referred to no cases are cited and no references given (Hirst). McClintock says that there are certain conditions that may permit of a spontaneous rupture of the vagina: first, disease of the vagina itself; second, disproportion between the size of the fetal head and the maternal pelvis; and, third, osseous irregularities upon the internal surface of the pelvis.



FIG. 5.

Ruptures of the vagina, although grave, are not by any means always fatal. Danyau records 4 recoveries in 17 cases, and McClintock 13 recoveries in 51 cases.

Treatment of Punctures of the Vault and Upper Portion of the Vagina.—The treatment of punctured wounds has already been indicated by what I have said. In some of the cases it will be advisable to open the abdomen, wash out and drain as we would for any acute attack of general peritonitis.

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Unfortunately these cases have generally progressed too far before the surgeon is called on to interfere. I do not consider it advisable to operate on the cases in which there is a more localized peritonitis, because many of them will recover without operative procedure. The pelvis may be packed with an inflammatory mass produced by exudate, and yet the patient may make a good recovery.

Only a few days since I operated on a case in which the diagnosis lay between extrauterine pregnancy and inflammatory trouble due to the use of a syringe for the purpose of bringing on a missed menstruation. After opening the abdomen I found the intestines covered with peculiar grayish lymph in some places, reddened in other parts, with all the evidences of a subsiding peritonitis; absence of adhesions. I never before witnessed the effects of peritonitis in this stage; old lymph, becoming cheesy, was found in the cul-de-sac of Douglas. I decided to close the abdomen and leave the ovaries and tubes *in situ*, concluding that the case was one of simple inflammation of the pelvic peritoneum covering uterus, ovaries, and intestines, and that there was no indication for removal of any organs. This is the condition produced by perforating wounds. The only two dangers I have met with in these cases are from prolonged sepsis and abscess formation, and acute general septic peritonitis.

The treatment of rupture of the vagina occurring during pregnancy or parturition is altogether a different matter. It is important in such cases to arrest hemorrhage. In cases like mine it will be found difficult to prevent prolapse of the intestine. A plugging from below may prevent both, but will not prevent septic peritonitis. It is mentioned in one case of Breslau that a midwife and bath attendant, by means of the finger nails, removed the uterus in a case of rupture of the vagina, and by means of plugging from below retained the intestines in their proper place. From my experience with these cases I am satisfied that it is easier to retain the intestines in their proper place after the uterus has been removed than before its removal. It is easy to invert the peritoneum over a plug of iodoform gauze, just as we do after performing the operation of total extirpation of the uterus. It may perhaps, in some cases, be wise to leave the uterus *in situ*. If it is entirely separated from the vagina it must be taken away. I removed it in my own case, owing to the fact that I was unable to control the hemorrhage without tying the broad ligaments. The

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posterior wall of the cervix, from which the vagina had been torn, bled very profusely after handling it during operation.

Is celiotomy the best practice in such cases? We have records of recovery without celiotomy and with celiotomy. Even if the abdomen is opened it is impossible to wash out all the meconium, vernix caseosa, and liquor amnii from among the coils of intestines. But surely the patient is cleaner and less liable to septic inflammation after the abdomen has been washed than before. It is well enough for some authorities to tell us that meconium is sterile, that liquor amnii is unirritating and vernix caseosa harmless, but there are very few peritoneal cavities able to take care of these "harmless (?)" substances.

I operated on a patient into whose abdomen the liquor amnii escaped three days before from a ruptured extrauterine pregnancy at full term. She did not die of fatal peritonitis, but made an excellent recovery from the operation. The peritoneal cavity will occasionally tolerate pus, but we would scarcely care to leave pus in the cavity if it could be removed.

The extra incision that is required for the delivery of the child through the abdominal wall can scarcely be considered as likely to increase shock. The delivery of the child back through the torn vagina (and the same holds good with the torn uterus) must of necessity increase the traumatism, and I can scarcely think that it is the best practice to pursue. If the abdomen is opened it is opened for several reasons: first, to inspect and ascertain the severity of the hemorrhage; secondly, to remove from the peritoneal cavity substances that are likely to inflame it; thirdly, to repair the laceration if possible; fourthly, to obtain drainage from below and from above (if necessary); fifthly, to provide a means to prevent prolapse of the intestines; and it is a question whether the abdomen should not be opened for one other reason—namely, sixthly, the delivery of the child through the anterior abdominal wall.

It is an easy matter for a library surgeon to sit in his arm-chair and formulate rules for our guidance, and to tell us that sutures should be applied to the edges of the rupture so that the rent may be closed. In the case of which I show you drawings it was not possible to close the vagina with sutures without greatly increasing the traumatism to the parts and the risk to the patient. The edges of the wound were puffed, edematous, gangrenous, and would not hold stitches. An immense amount of paring would have been required, and this

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paring would have increased the loss of blood from which the patient had already suffered. I scarcely see why we should waste time over the suturing of the rent. It is the drainage of the rent that is required more than a suturing of it, and a cleansing of the parts above.

Lacerated and Perforated Wounds of the Uterus.—Perforations of the uterus occur as a result of attempted miscarriage. On one occasion, while performing an abdominal section, the house surgeon was asked to pass a sound. The patient was profoundly septic and her tissues were very soft. The sound was passed up from below, and I felt something underneath the abdominal wall. I asked the house surgeon to hold it, and immediately opened the abdomen and cut down on the sound that he had forced through the uterine fundus. After he withdrew the sound I examined the perforation, found that it bled slightly, cleansed it, completed the operation for which the abdomen was opened, and closed the wound. The patient made an uninterrupted recovery.

Perforations of the fundus occur as a consequence of the use of the curette, and I think this may sometimes account for the untoward results of curettement. I operated in one case of acute purulent peritonitis occurring six days after the use of the curette by a physician, but could discover no rent in the uterine wall.

Lacerated wounds of the uterus are more frequently met with in the cervix than elsewhere. Fortunately many of these lacerations are of but slight importance. They are occasionally produced by the use of the solid metal dilator. It is unnecessary to give them more than a passing notice in this connection. We therefore pass on to the consideration of rupture of the uterus in its true sense. McClintock found that in 35 cases out of 108 the vagina was lacerated as well as the uterus.

Rupture of the Uterus before Labor.—Rupture of the uterus may occur before labor, from the fourth to the ninth month, as a consequence of external injury or the giving way of cicatrices left by former lesions, or the tearing of dense adhesions. I operated on one case of extrauterine pregnancy in a patient with a bicornuate uterus with one of the horns ill-developed. The fetus developed to full term in the abdominal cavity. In this case I am satisfied that the pregnancy occurred in the ill-developed horn, that rupture and extrusion of the child took place about the third month, and that the woman went on to term.

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Leopold relates the case of a woman who ruptured her uterus, two or three weeks before quickening, by falling down some cellar stairs and alighting heavily on her sacrum and nates. She had no hemorrhage or abdominal inflammation, and soon recovered, but from the time the child's movements began they caused her such severe abdominal pain that she was almost completely bedridden. Movements ceased about three weeks before the end of her term. There was no discharge of blood or decidua. On performing laparatomy the child was found in a delicate sac, and when extracted by the head the pelvis and foot, which lay near the pancreas, were followed by a coil of small intestine with which they must have been in direct contact. The cord passed into the uterus through a perpendicular slit, about two centimetres long, behind the right broad ligament. The patient recovered. Leopold concluded that the rupture was caused by the posterior surface of the uterus coming into violent contact with the promontory of the sacrum.

The diagnosis of rupture of the uterus before labor must be extremely difficult. It is a subject that will be well worth future study.

The treatment must depend upon the individual case under discussion at the time.

Rupture of the Uterus during Labor.—The causes may be formulated as follows: first, mechanical impediment to the course of labor, such as presence of fibroid tumors, etc.; secondly, increase of the size of the child or child's head owing to sex or deformity, such as hydrocephalus, monstrosity; thirdly, faulty presentations of the fetus; fourthly, compression of the cervix uteri between the head of the child and the pelvic walls; fifthly, deformity of the pelvis; sixthly, operative violence; seventhly, preternatural violence of uterine contraction due to improper administration of ergot, or other causes such as morbid excitability of the organ; eighthly, straining at stool; ninthly, disease of the uterine wall, such as cancer, partial atrophy or thinning, abnormal softening, fatty degeneration, hydatid disease; tenthly, narrowing of the os uteri as a consequence of extreme rigidity or atrophy; eleventhly, abnormal development of the uterus.

The operative violence that is perhaps responsible for more ruptures of the uterus than any other is turning after the liquor amnii has escaped for some hours.

Two of my confrères sent for me one night to see a patient. On my arrival I was informed that they had bee nall night

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with the patient, that they found an occiput-posterior presentation in the pelvis of a primipara. After long, weary waiting they decided to use forceps. An attempt was made to deliver with the forceps and failed. Turning was then resorted to under chloroform; this was about three or four hours after the escape of the liquor amnii. The feet were brought down with considerable difficulty, but after that the delivery of the child was easily accomplished in about twenty minutes. The placenta was expressed exactly as in a normal labor. The woman remained in a good condition for about three-quarters of an hour and one of the physicians had gone home. After this the pulse became rapid and the patient's face looked anxious. I found her in this condition. The patient died. I advised the doctor after death to get the nurse out of the room and pass his hand through the vagina in order to ascertain the extent of the rupture. He did so and found a large tear on the left side of the anterior wall of the uterus.

Out of 197 cases of traumatic rupture 71 followed version, 37 the employment of the forceps, 10 cephalotripsy, and 30 other unwise manipulations.

I operated successfully on one case of rupture of the uterus. The rupture was produced by introduction of the hand of the practitioner. The case has already been recorded in the *Canadian Practitioner* in a paper read at the twenty-ninth annual meeting of the Canadian Medical Association, held at Montreal (Fig. 6).

Moderate contraction of the pelvis is more liable to produce rupture than excessive contraction, as in the latter case the cervix is always kept above the brim and the fetal part cannot engage.

Rupture is said to occur in about one in three thousand deliveries. In a record of 6,777 cases attended by my father, the late James Ross, he had one case of rupture of the uterus, No. 5017 in his list. It was a forceps delivery in a multiparous woman; the child's head was large. Suddenly the patient stated that she was dying and became pale and almost pulseless. The head was delivered and great difficulty was found in delivering the shoulders owing to their size. Placenta then followed by pressure over the fundus, and the uterus contracted well. No rent could be discovered by the fingers in the vagina. Patient died thirty-six hours after delivery. This was before the days of modern abdominal surgery. At the postmortem examination liquor amnii, blood, and vernix caseosa were

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found in the peritoneal cavity. A large rent extended from the right side of the neck of the uterus obliquely upward across the posterior wall toward the left cornu, almost as high as the left Fallopian tube. This involved the whole thickness of the uterine wall. The os and cervix remained intact.[1]

It has been stated that rupture of the uterus occurs more frequently in second and subsequent labors than in first labors. Churchill and Trask, however, claim that there is a preponderance of rupture of the uterus in primiparous cases, due in



FIG. 6.—Uterus ruptured by hand of practitioner; posterior vaginal section; drainage; recovery.

all probability to protracted labors. Many writers claim that rupture of the uterus may take place before the membranes are ruptured.

Simpson's statistics showed that when labor extended beyond twenty-four hours there was rupture in one case in 38; when it lasted only six hours, one case in 2,000. The mean duration of labor in 57 cases of rupture was twenty-one hours and six minutes, as given by Trask.

Trask's analysis of 1,848 showed rupture of the cervix in 55

[1] See AMERICAN JOURNAL OF OBSTETRICS, 1895, vol. xxxii., No. 8.

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per cent, rupture of the body in 36 per cent, and rupture of the fundus in 9 per cent. It is generally admitted that the most common seat of rupture is the posterior wall of the inferior segment, and, next to this, the lateral walls, especially the left. The ruptures are usually single, but may be multiple. It is rare to have a simple perforation of the uterine tissue, as the tear usually extends over a distance of three or more inches. It sometimes happens that the peritoneal layer is not torn through, but pushed back by blood extravasated beneath it.

While a student at Prof. Braun's clinic at Vienna in 1880 I saw a case of rupture of the uterus occur on the 13th of February. The patient lived until the 23d of the same month. At the postmortem examination there was a rent in the cervix; blood was found effused under the peritoneum to an enormous extent. The peritoneum was not torn.

From an experience of three cases of rupture of the uterus and one of rupture of the vagina I may say that the rapid pulse, the dyspnea, the nausea, vomiting, and cold perspiration, are not necessary accompaniments of rupture. In two of these cases the symptoms were found, and in the other two, one of which includes the case of vaginal rupture just under consideration, no such symptoms were present. It is generally considered that the contractions of the uterus cease after rupture.

An interesting table is given by Jolly. Among 580 cases of rupture the uterine contractions ceased in 286, external hemorrhage occurred in 148, collapse in 179, vomiting in 147, retraction of the presenting part in 146, abdominal pain in 133, and in 77 the fetal limbs could be felt through the abdominal walls.

Among a few other points that have been noticed by different observers are a tearing sound heard by the patient and bystanders, violent movements of the fetus followed by sudden cessation of the heart sounds, a change in the shape of the abdomen and the uterus, with the escape of the fetus, each forming a tumor with a furrow between them. An emphysematous condition has been noticed, with fluctuation or a dulness in the flanks, as a consequence of intraperitoneal hemorrhage or fluid. In some instances symptoms may be almost entirely absent and the rupture may escape recognition; but such phenomena as fixed pain and vomiting, recession of the presenting part, and cessation of contractions must awaken the suspicion that rupture has occurred.

Sometimes labor proceeds in spite of rupture until the child

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is expelled spontaneously per vias naturales. In cases in which rapid pulse follows severe labor and peritonitis sets in early, a partial rupture of the uterus may exist and be overlooked. This is a point requiring further thought and investigation.

The prognosis for the mother is particularly grave when the fetus escapes into the abdomen. Prognosis for the child is always bad.

At the present time expectant treatment has been almost entirely abandoned. Extraction of the child by the natural outlet is the usual procedure. This I have already criticised in dealing with ruptures of the vagina. Such extraction may, of course, be accomplished either by forceps or version. Undoubtedly celiotomy is the operation that gives the most successful results. The stitching of the tear, I consider, is quite uncalled for and may be difficult to accomplish. Such bruised and gangrenous tissues will not unite by first intention, and I am satisfied, from a personal experience with one case, that all that is required is a packing of the uterus and vagina with a rope of iodoform gauze that has been drawn down through the uterine tear and cut off level with the peritoneum on the peritoneal side, together with the placing of a glass drainage tube in the cul-de-sac of Douglas. The contractions of the uterus have already done what the surgeon would waste time in doing by closing the rent with stitches. The abdomen should in any case be thoroughly irrigated. It is only in exceptional cases, in which hemorrhage is severe, that hysterectomy is called for. It has been stated that in performing the operation of hysterectomy ligature *en masse* of the tissues is insufficient, owing to the fact that the vascular and edematous pelvic connective tissue shrinks up and loosens the ligature. I may say that such hemorrhage depends upon the force with which the ligature is applied and the material of which it consists. I believe that in any of these cases ligatures can be applied with safety to tissues *en masse,* provided sufficient force is used in tying them. Unless of first-class material the ligatures will not stand the strain required.

481 SHERBOURNE STREET.

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THE TREATMENT OF ASPHYXIA NEONATORUM BY THE HYPODERMATIC INJECTION OF STRYCHNIA.[1]

BY

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ALTHOUGH the main object of this communication is to advance the claims of the special treatment indicated by the title, I shall enlarge somewhat on the subject by considering briefly the varieties, causes, and methods of treating asphyxia neonatorum.

The maternal death rate of child-bearing has been steadily diminishing, until at present it is a fraction of one per cent. The fetal mortality, although reduced, has not lessened in proportion. In maternity institutions the infantile mortality ranges from five to fifteen per cent.

According to the report of the Health Department of the District of Columbia the annual returns of still-births average about 500. During the last five years there were 2,564 still-births returned—an infantile mortality of 9¼ per cent. Injury, ill-health, and over-exertion of the mother head the list of causes with 349 deaths. Other causes are premature births, 132; protracted labor, 115; injuries to the cord (pressure or prolapse), 91; fetal diseases, 74. Placenta previa, presentations of the breech, syphilis, instrumental delivery, and contracted pelves are mentioned in the order of their importance. In regard to the period of utero-gestation, nearly one-half of the still-births occurred at full term, one-sixth at the eighth and seventh months each, and one-tenth at the sixth month.

We must recognize three classes of asphyxia:

First, those due to maternal disease, as syphilis, nephritis, arterio-sclerosis, and acute intercurrent diseases of pregnancy.

Second, intrauterine asphyxia, as from coiling or twisting of the cord around the fetus; short cord; premature separation of a portion of the placenta, whether previa or normally implanted; direct violence; and ergotism.

Third, asphyxia occurring during labor, from prolapsed or

[1] Read before the Washington Obstetrical and Gynecological Society, May 7, 1897.

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twisted cord; from compression of the fetal head by the forceps or pelvic walls; breech presentations; and tetanoid contractions of the uterus.

In the first class the prevention of asphyxia is in the line of general treatment for the existing malady. Notably in the case of syphilitic disease is the beneficial result of treatment manifested.

Improvement in the second class is mainly in the early recognition of threatened asphyxia and the prompt resort to measures for effecting delivery of the child. Unfortunately too little attention is paid, even during labor, to the condition of the child. Unless the labor be prolonged or difficult, it is taken for granted that the infant is in no danger and examinations of its heart sounds are not made. Evidence of threatened intrauterine asphyxia is obtained by noting with the stethoscope the changes in the fetal heart sounds. The pulsations become diminished or irregular and more rapid. Diminished frequency results from the inhibitory influence of the pneumogastric, while paralysis of the nerve, indicative of more pronounced asphyxia, is evidenced by rapid heart action.

The following interesting case of intrauterine asphyxia came under my observation. A woman with a contracted conjugate diameter was in labor; the head was movable above the brim, the bag of waters had ruptured, and the os was not dilated. Later the fetal heart sounds could not be discovered, although they had been distinctly heard at a previous examination. Under anesthesia the hand was inserted into the vagina and two fingers into the uterus. The pulseless cord was felt pinched between the head and the symphysis pubis. Craniotomy instruments were sent for, and one hour later, when preparing to use them, to my astonishment the fetal heart sounds were again distinctly audible. The manipulations described had released the cord and the infant had revived with the return of the circulation. Although the child afterward died in utero, the case is interesting as demonstrating the cause of the intrauterine asphyxia and the possibility of its relief in some cases.

In the third class the prevention of asphyxia during labor resolves itself into the best method of treating the complications that are encountered, such as forceps extractions, breech presentations, placenta previa, short, coiled, or prolapsed funis, premature births, etc. The rearing of feeble and premature infants will demand special attention, even after escaping the dangers of asphyxia neonatorum. The administration of ergot

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during the second stage of labor caused innumerable still-births in the practice of our ancestors. The truth of this was brought home to the writer by his grandmother's narrative of the circumstances attending his own birth. He was still born after a prolonged labor terminated by the use of this drug. The physician in attendance worked unsuccessfully to resuscitate him and abandoned the effort. Later his grandmother prevailed upon the medical attendant to make a second attempt, which finally was rewarded with success. Another lesson impressed was the importance of persisting in efforts to resuscitate such cases as long as any vestige of hope remained.

In this connection Cazeau and Tarnier [1] say: "The lapse of half an hour, an hour, or even more, from the time of delivery, is not sufficient cause for despair, since a number of facts may be mentioned going to prove that children have been in an asphyxiated condition for an hour and were afterward restored to life. Long-continued silence of the heart, the entire absence of pulsations at the precordial region, frequently determined at intervals, is the only sign which can be regarded as destructive of all hope. The heart is the *ultimum moriens*, and I do not believe that efforts to restore its pulsations, when once completely extinguished, have ever been crowned with success. But the softness and flaccidity of the tissues and coldness of the body and face are no reasons for abandoning the child, provided the heart still beats, however feebly, slowly, or irregularly."

Smellie [2] mentions that in 1757 he was called by a midwife to see a woman in labor at the seventh month. A child was soon delivered which was, to all appearances, dead and failed to respond to the usual remedies applied by the midwife, including "holding an onion to the mouth and nose." The child was placed in a closet, and later, while Smellie was prescribing for the patient, he heard a whimpering noise from that direction. Not knowing what disposition had been made of the child, he asked if a kitten was confined in the place. The nurse ran to the closet and brought out the child, which was alive.

Remarkable instances of resuscitation are mentioned in the "American System of Obstetrics." [3] "In one case the child had been hidden in a sandpit for half an hour; another

[1] "Theory and Practice of Obstetrics," P. Blakison, Son & Co., 1884, p. 416.

[2] "Midwifery," New Sydenham Society, vol. ii., p. 275.

[3] Lea Brothers & Co., 1888, vol. i., p. 519.

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had been buried one foot under the surface of the ground for five hours; another was exhumed one hour after burial; another was saved after three-quarters of an hour's burial; and in one case life was discovered in a child twenty-three hours after it had been supposed to be dead and prepared for burial However incredible these reports may be, they are nevertheless instructive, and may show that ill-usage and chilling are not without salutary effects, and may ultimately prove that more careful exposure and refrigeration may be a valuable method of resuscitation.

"In this connection the cases reported by Goodell are of special interest. In one case the child revived after having been laid aside. The efforts at resuscitation had failed. In another case two physicians had pronounced the infant dead after the failure of several methods to induce respiration. The child was placed outside of the window on the roof, the night being cold. When taken in to be washed it was alive. A third child was laid in the corner of a room after failure of various methods of artificial respiration. An hour later the nurse took it to the bath room to prepare it for burial and found it alive.

"Some observers have claimed better results when the efforts at resuscitation were executed with the child laid naked on the bare floor in a room cooler than the lying-in chamber. The writer has in two apparently hopeless cases succeeded with Sylvester's method in this manner. In both cases the asphyxia was of the anemic form."

Cazeau,[1] in a footnote, recalls the experiments of M. Brown-Séquard on warm-blooded animals, which prove that they are capable of resisting asphyxia longer in proportion as they are subjected to a lower temperature.

The following case was treated with cold immersion at the Columbia Lying-in Hospital:

"Bertha Yates, Ipara, admitted in labor April 30, 1897, at 7:20 A.M. Her pains were quite frequent and hard. Membranes ruptured at 11:45 A.M., and the child was born at 12:15 P.M. Mechanism of labor normal. L. O. A. On the genitals were about fifteen venereal ulcers; the parts were very much inflamed and swollen. Considerable pressure had to be exerted on the head so as to save the perineum, which was very friable owing to its diseased condition. The child when it was born was pallid; there was no respiration, and

[1] "Theory and Practice of Obstetrics," 1884, p. 416.

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the heart was fluttering feebly, but soon stopped. There was a delay of five minutes in the preparation of the hypodermatic of $\frac{1}{200}$ grain of strychnia sulphate. The cord, which was not pulsating, was immediately cut and the usual measures for resuscitation were employed, with no apparent effect. As soon as the hypodermatic was prepared it was administered, and artificial respirations performed while holding the child in cold water. In about one minute after the strychnia was given the child began to respire and soon to cry lustily."

In the treatment of asphyxia neonatorum it is important to recognize the two varieties, the livid and the pallid. Strictly speaking, they represent different degrees of one form—the livid, unless relieved, soon passing into the pallid. In the milder form the lips, tongue, and surface of the infant are blue; the vessels of the umbilical cord are distended; the heart beats are slow, labored, moderately strong and regular; muscular contractions exist, and the reflexes are preserved. In the severer type the mucous membranes and surface of the infant are pallid, the umbilical vessels are collapsed; the pulse is rapid, feeble, and the circulation ceasing; by auscultation the heart sounds are irregular and indistinct; the lower jaw hangs loose, the sphincters are relaxed; the muscular system is paralyzed and absolute loss of body reflexes exists.

"The American Text Book of Obstetrics" [1] gives this method for determining the grade of asphyxia: "If, upon introduction of the finger to remove the mucus, there are choking and convulsive movements and consequently attempts to breathe, and the presence of the reflexes is shown, it is asphyxia of the first grade and the prognosis is good. If this irritation of the palate produces no action, but the palate remains soft, the asphyxia is of the second grade and the prognosis is bad."

Under normal conditions the birth of the infant is quickly followed by respiratory efforts, the contact of the air exciting the reflexes. If such be not the case, evidence is soon apparent of non-oxygenation of the blood. The excess of carbonic acid in the blood then excites the respiratory centre in the medulla, and inspiration takes place. If, on the other hand, the respiratory centre fails to respond, the cord should be cut and a little blood permitted to escape. The infant should be suspended for a moment by the heels to facilitate the gravitation of mucus from the throat and trachea. The finger passed quickly into the pharynx removes the secretion and excites

[1] W. B. Saunders, Philadelphia, 1895, p. 816.

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respiratory effort. The cutaneous reflexes may next be excited by slapping the surface with the palm of the hand or a wet towel, sprinkling with cold water, or pouring ether upon the chest. Immersion alternately into hot and cold water is a good method. The asphyxia persisting, some form of artificial respiration may be resorted to. Schultze's is most efficient, as it aids the expulsion of the fluids from the air passages by gravitation and expression, as well as produces inspiratory and expiratory movements. If success does not soon reward the efforts it should not be continued too long, as it is a rough method at best. The hypodermatic injection of fifteen minims of whiskey acts as a powerful excitant and has given the writer most gratifying results. During the past few years it has given success without other treatment in a number of cases of this form of asphyxia, both in private and hospital practice. In several of the cases the more serious stage of asphyxia had been reached. He believes the credit of this treatment belongs to Dr. Bedford Brown, of Alexandria, Va.; at least he first called attention to it so far as the writer is aware.

The object of this paper is not to exhaust the list of methods recommended, but merely to give an outline to lead up to the special treatment indicated by the title.

If the mild type of asphyxia does not yield to the above treatment or some of its modifications, the more serious form (the pallid) supervenes. The line of treatment should now be modified to meet the changed conditions. The persistence of vigorous efforts to excite artificial respiration will only act injuriously upon the heart and stop its enfeebled action.

An infant born with the pallid form should, contrary to the former advice, be permitted to remain undisturbed in its placental attachment so long as any pulsation of the cord is apparent. It should be suspended by the heels for the twofold purpose of clearing the throat and upper air passages of mucus and assisting by gravitation to overcome cerebral anemia.

From this point, as well as from the unrelieved livid form, already considered, the infant must be treated as if it were in a condition of shock, which indeed is the case. Rough measures will only extinguish the spark of life.

The indications are, first, to apply external heat. This is best done by immersion in water at a temperature of 100° F.

Second, stimulate the respiratory centre, the flagging circulation, the paralyzed muscular system, and abolished reflexes.

This brings up the recommendation of strychnia hypoder-

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matically to fulfil the indications. It is our most powerful remedy in surgical shock; it should be equally valuable in the grave form of asphyxia neonatorum. Its use for such purpose was suggested to the writer's mind eighteen months ago, and the result has more than met his expectations. The amount of the drug administered is $\frac{1}{200}$ grain. On one occasion a nurse gave by mistake $\frac{1}{100}$ grain to a premature infant delivered by version in a case of placenta previa. The infant was soon relieved of the asphyxia, but had pronounced spasmodic twitchings of the muscles, and died on the second day. It is uncertain whether the fatal termination was due to the drug, but the infant showed the toxic effect of strychnia in a decided manner.

After the administration of the strychnia accessory methods of treatment may be employed. Artificial respiration may be carried on while the child is in the hot bath. Sylvester's or Dew's method answers best under these circumstances. Jacobi has advised the rectal injection of hot water, and Grandin of hot normal salt solution. The latter might be given more effectively by injection into the subcutaneous tissue or directly into the vein.

1133 FOURTEENTH STREET, N. W.

ECLAMPSIA, ANTEPARTUM AND POSTPARTUM.[1]

BY

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Philadelphia.

THE following cases of eclampsia occurring before and after labor illustrate points in the causation and treatment of this disorder.

Mrs. H., age 21, a primipara, was brought to the Jefferson Maternity on December 28, 1897, in eclampsia. Dr. J. A. Morrow, her physician, accompanied her. She was unconscious and having severe convulsions at about ten-minute intervals. The patient was seven months pregnant, but fetal heart sounds could not be heard. The position of the child was the first, and the presentation a vertex. Upon vaginal examination the cervix was still present, the os admitted two

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, February 17, 1898.

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fingers with difficulty, while the tissues of the cervix were exceedingly resisting. The patient was a slender, pale woman, having a normal pelvis, but with very ill-developed muscular system.

The history given was that her mother was a neurotic woman. She herself had been ill-nourished from childhood and had used tea and coffee in excess. She had suffered severely from dysmenorrhea and from headaches caused by eye-strain.

Dr. Morrow reported that two months previous he had been called to see her for an attack of intestinal colic. He had urged the patient to report regularly to him, as she evidently needed attention. This she failed entirely to do, and he was next summoned to her on the morning of her admission, when he found her in convulsions. So soon as her family's consent could be obtained she was brought to the Maternity, arriving at 6 in the evening. On admission the patient was immediately catheterized, when a few ounces of urine were obtained. The examination of this specimen gave the following results: Color, amber; specific gravity, 1020; reaction, acid; serum albumin present in large quantity; sugar, none; urea, 1.13 per cent. The patient had passed no urine since early morning. She had been treated by the administration of chloral, morphia, and other drugs. Her bowels had moved the day previous.

The condition of the cervix was such that immediate delivery was impossible without incision or rapid dilatation. The patient's pulse varied from 120 to 140.

Under the circumstances, it seemed advisable to bring about rapid elimination, and then as soon as possible to empty the uterus. Accordingly the patient was put in a hot pack, normal salt solution was introduced continually under the skin for an hour, while ten minims of Squibb's veratrum viride were given hypodermatically. Convulsions were controlled by chloroform. Under this treatment the patient's pulse fell to 100; she vomited several times, but did not perspire, while the convulsions continued when the patient was not under the influence of chloroform. At the end of the hour examination showed that the os had become somewhat softened, although still resisting. Multiple incisions were then made with blunt-pointed scissors, manual dilatation was practised, and a large McLean's bag was inserted after rupturing the membranes. The patient's labor pains were intermittent and feeble. She was then given a copious irrigation of the large intestine with

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two gallons of hot water. As her pulse was rising rapidly, ten minims of veratrum were again injected, the patient put in another hot pack, and normal salt solution again injected beneath the skin for another hour. At the end of this time the patient was delivered with forceps of a still-born child. The placenta was immediately expressed, no considerable bleeding following.

At the termination of labor the patient's pulse was 114, her temperature 103½°, and she was still profoundly comatose. The hot pack and saline transfusion were again repeated, and strychnia and atropine given as stimulants. The pulse was lacking in tension and the heart action weaker. As the constant tendency to convulsions continued, at midnight the patient was given a half-grain of morphia by hypodermatic injection. Several severe convulsions occurred after labor, but toward morning the patient became quiet.

Bronchial breathing developed over the bases of the lungs, and pneumonia was feared. The patient was given digitalis hypodermatically, with rectal injections of whiskey and milk. She continued profoundly unconscious.

On the afternoon of the day following admission the stomach was thoroughly washed out, and two and a half grains of calomel with ten grains of sodium bicarbonate were poured into the stomach. Two days after admission the patient gradually regained consciousness.

An examination of the first urine secreted after convulsions had begun showed an interesting difference in one particular. In the first specimen, secreted before the convulsions became severe, the specific gravity was 1020 and the urea 1.13 per cent. In the second specimen, obtained after convulsions had continued for several hours, the percentage of urea had dropped to 0.50 of 1 per cent, with the same specific gravity. This condition of the urine remained through the day, while its quantity steadily increased until the following day, when, forty-eight hours after admission, the percentage of urea was 2.14. As the secretion of urine increased, the packs and saline transfusions were gradually lessened, and intestinal lavage was substituted instead.

The patient gradually made a good recovery and was discharged on the twenty-fourth day. She suffered from an abscess near the brim of the pelvis where saline fluids had been injected. This, however, was readily emptied, and the patient went to her mother's home in Camden, convalescent. Her

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mouth had been badly bitten and her tongue lacerated, and some time was required before these injuries were healed.

CASE II.—O. P., age 19, primipara, applied for admission at the Jefferson Maternity, and was received on January 12 at 10:20 P.M. She was then in the first stage of labor. An examination of her pelvis showed a simple flattened pelvis, her fetus in the usual position and presentation. She seemed somewhat stupid and had sluggish labor pains, but delivered herself early the following morning. At 2 o'clock upon the same afternoon she complained of severe frontal headache, and soon after had eclamptic convulsions. The convulsions were excessively severe and recurred at intervals of a half-hour. Ten minims of veratrum viride were injected, and the treatment employed in the previous case was used in this. The patient had no convulsions after 8 P.M. and made a good recovery. In accordance with the rules of the Maternity this patient had previously brought a specimen of urine for examination, and her excretion was found so deficient that she was told to report for treatment. This she failed to do until she came into labor. An examination of her urine obtained after delivery gave the following result: Specific gravity, 1002; reaction, acid; albumin present in abundance; sugar, none; urea, 0.51 per cent. Microscopical examination showed granular and hyaline casts. As in the previous case, the amount of urea steadily increased under treatment.

We have in Case 1 a typical example of acute toxemia with albuminuria in a neurotic primipara. Her condition on admission was so bad that an unfavorable prognosis was given. It will be remembered that her urine was of high specific gravity, had abundant albumin and but little urea. Case 2, a colored girl, less susceptible to toxins, continued in a toxemic condition for more than a week before labor, passed through labor without convulsions, and then had eclampsia. In her case the urine was of low specific gravity, highly albuminous, and contained a low percentage of urea. Neither patient had swelling of the legs or feet, or edema of the face.

Regarding the causation of eclampsia, I desire to call attention to the following points: It seems clearly demonstrated that toxins of unknown composition cause eclampsia. These bodies are not found in the urine of eclamptic patients during eclampsia, nor are they found in great quantities in any urine. If they were present in the urine the patient would not have eclampsia. The percentage of urea, however, in connection

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with the specific gravity and amount, is of value as a clinical index of the amount of waste successfully excreted. When this is reasonably high the patient is not forming from it within her body poisonous compounds. In order to thoroughly search the body of an eclamptic patient for the cause of her disease, every tissue of her body would have to be subjected to chemical and biological analysis before an exact answer could be given regarding the precise cause of this serious disorder. That eclampsia can be prevented by regulating the diet of the pregnant woman and stimulating her excretion is a fact too familiar to require comment.

An eclamptic patient can be made to excrete by the use of the hot pack, and saline injections into the skin and bowel. Such treatment, if faithfully carried out, may save the patient from eclampsia; but if her tissues have been seriously damaged by the poison, she may recover from convulsions only to die from pulmonary gangrene or failure of the nervous centres. In these cases veratrum viride seemed of decided service. In Case 1 it may be urged that immediate delivery was demanded. But delivery did not stop the convulsions, and valuable time would have been lost had it been attempted at once.

As regards a prognosis in eclampsia, it must be based upon several factors. The youth of the patient, her freedom from alcoholism, gout, or previous kidney failure, are important factors. The element of time is of the greatest value. Each half-hour with an eclamptic patient that passes without vigorous treatment is greatly to her disadvantage.

Another element of great importance in forming a prognosis is the acute or chronic nature of the toxemia present. Patients whose urine shows evidences of sudden kidney failure are more favorable cases than those in which albumin is absent, the specific gravity of the urine low, and the process a chronic one. It must also be remembered that the vigor or sluggishness of the other excretory organs besides the kidneys is an important factor.

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THE HISTORY OF PAIN AND THE MENSTRUAL HISTORY OF EXTRAUTERINE PREGNANCY.[1]

BY

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IT has become possible in the last ten years for experts to make a positive diagnosis in the majority of cases of tubal pregnancy before the sac has ruptured, and I find it by no means rare for the general practitioner to have made such a diagnosis correctly before summoning a consultant. Many women, however, suffering from a tubal pregnancy are treated to-day for a miscarriage; and the minds of all specialists cannot be quite clear on the signs of ectopic gestation when one reads in an English monograph on the subject that pain is not a symptom of the condition, when he sees this statement copied in a recent text book of prominence, and encounters the curious assertion in one of the latest English works on gynecology that a woman with pelvic pain and amenorrhea may be supposed to have an extrauterine pregnancy in the absence of a history pointing to an old pyosalpinx or to other pelvic inflammation.

As a matter of fact, there are three cardinal symptoms of ectopic gestation: pain, characteristic in nature, manner of occurrence, and situation; irregularity of menstruation, often with the discharge of what the patient calls "pieces of flesh" (decidua); and these physical signs: for the first two, three, or four weeks a small swelling in the tube, no bigger than the end joint of one's thumb, and unadherent; later an exquisitely sensitive mass fixed in the pelvis by thick, velvety adhesions.[2]

Of the three cardinal symptoms the pain has been most helpful to me in making a diagnosis. I have in my case books the full histories of twenty-two extrauterine pregnancies. This is not my total experience, for I have omitted all doubtful records

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, February 17, 1898.

[2] These adhesions are extremely vascular, are often the source of the intraperitoneal bleeding, and, it seems to me, contribute to the nutrition of the ovum after the manner of an early stage of the deciduous membrane within the womb in normal pregnancy.

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in which an embryo was not found or a microscopic examination was not made, and I have unfortunately failed to obtain the histories of some of my cases. This is not, however, surprising. It is obviously impossible to secure a history of every case. Called to a woman who has been bleeding internally for some time, a physician cannot torture the moribund patient and distracted family by a cross-examination. Numerically scanty as it is,[1] this recorded experience has been most instructive to me, and I find no single item in these histories so distinctive as the history of pain.

Glancing over the following table (Table I.), one sees plainly that the pain of extrauterine pregnancy has characteristic peculiarities and is distinctive. It might be defined with some

TABLE I.—PAROXYSMS OF PAIN.

Time of first occurrence after last normal menstruation.	Character.	Situation.	Repetition of paroxysms.	Systemic effect.
Two calendar months.	Two months after last sickness rupture occurred, and patient died in twelve hours without previous history of pain. Treated for miscarriage while dying from internal hemorrhage.			
Two months and ten days. First paroxysm of pain day after cessation of a continuous flow lasting twenty-seven days, and beginning ten days later than the period for a normal menstruation.	Violent pain appearing first at stool	In the rectum, extending up both sides of abdomen.	Several daily for two weeks.	Face blanched; vision obscured; tendency to faint.
	Treated for miscarriage by a professed specialist in gynecology.			
First paroxysm in the midst of a four weeks' flow that had begun at the normal time for a menstrual period.	Sudden violent abdominal pain while at stool.	Indefinite; lower abdomen.	Several times a day for two weeks.	Syncope at first attack; repeated loss of consciousness for the first week.

[1] Compared with a collective experience. For a single individual this experience is not small. One sees in journals occasionally the loose statement that an operator has had a "hundred cases or more" of extrauterine pregnancy. An investigation of his case books would probably reduce this number by more than three-fourths.

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TABLE I.—PAROXYSMS OF PAIN (*Continued*).

Time of first occurrence after last normal menstruation.	Character.	Situation.	Repetition of paroxysms.	Systemic effect.
There was no cessation of menstruation First paroxysm occurred two and a half months after first exposure to illegitimate impregnation.	Sharp, stabbing	Right groin...	Several.....	Suffering completely disabled her, but she did not faint.
Within a day or two after last normal menstruation	Sharp, agonizing.	Back and front in the middle line of the lower abdomen, but extending down the right leg.	Repeated. A particularly severe paroxysm, with the period delayed ten days.	Completely disabled and bedridden.
Two weeks after last normal menstruation.	Severe abdominal pain.	In lower abdomen; not definitely located.	Two severe; many less violent.	Completely disabled and forced to go to bed.
Two months from last sickness.	Sharp, stabbing; anguish.	Lower abdomen and down right leg	Several.....	Hysteria, first time in her life.
Three and two-third months.	Frightful agony.	Left lower abdomen, extending up to epigastrium.	One	Shock, subnormal temperature; hollow cheeks; sunken eyes; pulse not bad.
Five and one-half weeks from last menses.	Violent shooting pains.	Lower abdomen, extending to epigastrium.	Three in four months.	Semi-unconscious; cold sweat; vomiting.
Three lunar months.	Dreadfully sharp, following a blow on the abdomen.	Indefinite; in abdomen; down right leg.	Several in a week.	Syncope followed by vomiting.
		Treated for miscarriage.		
Three lunar months short four days.	Violent, excruciating.	In left groin..	Three in twelve days.	Syncope followed by vomiting.
		Treated for miscarriage.		
Seven weeks..	Fearful abdominal pain.	On right side; down right leg.	Two in two months. The last occurring every day for three weeks.	Syncope in first and "sinking spells" in subsequent attacks.
Two weeks...	Great pain in lower abdomen.	Lower abdomen.	About twenty in a month; intervals completely free	Cold sweat; no syncope or tendency to faint.

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TABLE I.—PAROXYSMS OF PAIN (*Continued*).

Time of first occurrence after last normal menstruation.	Character.	Situation.	Repetition of paroxysms.	Systemic effect.
Six weeks....	Severe abdominal pains.	Not definitely located.	One in two days; another three weeks later.	Confined to bed for six weeks with pain, fever, bloated abdomen.
Seven weeks..	Fearful abdominal pain.	Not definitely located.	Again in ten days, and thereafter daily for three weeks.	Syncope and repeated "sinking spells."
		Treated for miscarriage.		
Two calendar months.	Agonizing pain.	In bottom of stomach.	Repeated, confining her to bed for three weeks.	Syncope followed by delirium.
		Treated for miscarriage.		
Two months..	Sharp, stabbing.	In right groin.	Repeated during a period of six weeks.	No history of syncope, sweat, or faintness.
Two and one-half months.	Severe abdominal pain.	Not definitely located.	Repeated in two periods of three weeks.	Disabled and confined to bed.
Two weeks...	Severe abdominal.	Not definitely located; in lower abdomen.	Many attacks in a period of two weeks.	Disabled and confined to bed.
Eight weeks..	Sharp, agonizing in abdomen.	Not definitely located.	Repeated attacks in a period of four months.	Disabled and bedridden; syncope in first attack.
Seven and one-half weeks.	Sudden, intense pain.	In right groin.	Not another for three months.	Syncope followed by nausea and vomiting.
After a continuous flow lasting six weeks and beginning at a normal time for a menstrual period.	Severe abdominal.	Not located...	None.....	Dropped to the ground in dead faint. Carried to the hospital and operated on immediately.

degree of precision as a pain described by the patient in strongest terms; occurring in paroxysms with intervals free from suffering; appearing at any time from a few days to months after a normal menstruation; situated often in one groin, though frequently indefinitely referred to the lower abdomen; extending down one leg or up to the epigastrium; and a pain so severe as to occasion profound systemic disturbance—syncope followed

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by nausea and vomiting, a cold sweat, hysterical outbreaks, complete disability, and every appearance of excessive shock.

These systemic symptoms, be it understood, are the result often of the intolerable agony and do not necessarily indicate rupture of the sac and internal bleeding. In the majority of my operations there is not enough blood in the pelvis to account for the systemic symptoms, and I often find no intraperitoneal bleeding at all until the extremely vascular and peculiar adhesions already referred to are torn in the enucleation and delivery of the sac.

TABLE II.—MENSTRUAL HISTORY.

Cessation of menses.	Return of flow.	Continuance.	Discharge of decidua.
For two months..	None.....	None.....	None.
	Patient died from rupture in a few hours at second month.		
For thirty-eight days.	In thirty-eight days.	Lasted twenty-seven days.	None.
None.....	Menstruation regular, except that one period continued a month.	One period continued a month, the flow persisting at time of operation.	None.
None.....	Regularly every month; no cessation of menstruation.	The normal length of time three to five days; fetus, two and one-half months, removed at time of operation.	None.
For thirty-eight days.	On thirty-eighth day; did not reappear at time for next period.	None.....	At the appearance of the delayed menstruation.
None; a flow of blood occurred three weeks after last normal period.	In two weeks after discharge noted in preceding column.	Two days..... ...	At the fifth week after last normal menstruation; in the second flow of blood.
Two and one-half months.	In two and one-half months.	For three weeks..	None; rupture occurred at third month; death in seven hours.
None.....	Two weeks after last normal period.	For two weeks....	None.
For eight weeks..	In eight weeks....	For four months..	None.
For fifty-three days.	In fifty-three days. (At preceding menstrual period there had been a few drops of blood.)	For two weeks....	At the third month.
None.....	In four weeks....	For six weeks	None.
Missed two periods.	In two and one-half months.	Twelve days.....	On third or fourth day of flow.

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TABLE II. (*Continued*).

Cessation of menses.	Return of flow.	Continuance.	Discharge of decidua.
Missed one period; returned ten days late.	In thirty-eight days.	Lasted one day; returned in ten days; slight discharge for three weeks, then a more profuse flow lasting almostcontinuously for three and one-half months	None.
For three lunar months.	None.....	Rupture occurred with profuse internal bleeding; no discharges till five days after operation, three and one-half months after cessation of menses	
Twelve days late; cessation of menses for forty days from last normal period.	In twelve days; then in eleven days, and again in a lunar month	Lasted one day; then two days; and on third reappearance, three weeks.	On the first day of third reappearance.
Three weeks late.	In seven weeks; again in a week; again in three weeks; again in a week.	No long continued flow.	On the third day of first return of flow.
None; a flow appeared fifteen days after cessation of last normal sickness.	Continued for a month.		None.
For six weeks; two weeks late.	In six weeks; again in seven weeks.	For a week; dis charge continuing at time of operation.	None.
For seven weeks; three weeks late.	In seven weeks; again in four weeks; again in forty days	Last menstrual discharge continued a week and was very profuse	On the first day of the first return of the flow.
For two calendar months.	In two months....	Lasted three weeks.	On the first day of return of flow
Two and one half months.	In two and one-half months.	Six weeks	After four weeks of continuous flow.
Missed three periods.	Three months and three weeks.	Six weeks	On second or third day of flow.

Turning next to the tabular statement in regard to menstruation, one is struck with the fact that the characteristic menstrual history of extrauterine pregnancy is one of irregularity and often not of cessation at all. In six of my cases, or twenty-seven per cent, there was no cessation of menstruation, and in

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four more a menstrual period was only delayed ten to twelve days.

Prolonged uterine bleeding, on the other hand, preceded or followed by the discharge of decidua, is the almost universal rule at some period in the history of a tubal pregnancy.

1821 SPRUCE STREET.

REPEATED EXTRAUTERINE PREGNANCY.[1]

BY

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IT is not my intention to-night to enter into any exhaustive study of the subject of ectopic gestation. I have not the slightest doubt that this serious obstetric complication is much more familiar to many of you than it is to me. You will all agree with me, however, I am sure, when I make the statement that none of us knows any too much of the condition. What is more, the little that we thought we knew is now and then being controverted in the light of more recent investigation and experience. Thus, we are taught and are in the habit of stating that probably the main factor in the production of ectopic gestation is some pre-existing tubal disease or abnormality whereby the action of the cilia in waving the ovum onward toward the uterine cavity is annulled, and the spermatozoid instead wanders beyond its normal precinct and fecundates the ovum either in the tube or before the entrance of the ovum into the oviduct. In the very recent manual of Bland Sutton and Arthur Giles[1] —men whose experience and reputation warrant us in carefully weighing whatever statement they may issue—we are confronted by the astonishing assertion that "a healthy Fallopian tube is more likely to become gravid than one which has been inflamed," and this in the light of a very large series of investigations on the subject. If this be true, we are perplexed to know why ectopic pregnancy is not of still more frequent occurrence than it is, although the solution of the etiology of

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, February 17, 1898.

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the comparatively frequent pelvic hematocele has removed ectopic gestation from the category of very rare and unusual obstetric complications to that of the not infrequent accidents of pregnancy. It may be that this is but the beginning of a reaction whereby we shall again come to believe that normally impregnation occurs, not in the uterine fundus, but in the tube.

Laying aside these questions, however, which can only be definitely settled by more extensive investigations and a larger clinical experience, I wish to call your attention to-night to one of the rarest manifestations of the condition, namely, repeated extrauterine gestation, and to report to you the history of a case which, so far as a careful study of the literature will admit, I believe to be but the sixteenth authentic instance of the kind on record. Slight mention of this case was made by Dr. G. I. McKelway,[1] of this city, with my consent, in a paper read by him before the American Medical Association at Milwaukee. It is my desire now to give it this formal recognition and assign it its place in the very limited list of such cases that have been reported in all medical literature.

The facts are as follows: Mrs. E. L., age 28 years, called at Dr. Baer's gynecologic dispensary at the Philadelphia Polyclinic on October 11, 1890, giving the following history: She had been married seven years and had given birth to four children, the oldest of which was 6 years and the youngest 15 months. Her menses had been suppressed for three weeks and she had believed herself to be pregnant, but two weeks later they returned, although they were scanty in quantity and of a pale color and were associated with cramp-like pains. This return was shortly followed by fever with repeated chills and marked prostration. She was profoundly anemic and there was considerable abdominal enlargement. Examination showed the cervix uteri resting upon the pelvic floor, a patulous os, and a uterine enlargement equal to that of the second month of pregnancy. A circumscribed, sensitive cystic mass, apparently closely attached to the uterus and of the size of a tangerine, was discovered upon the left side of the pelvis. One week later, October 20, 1890, an abdominal section was performed by Dr. Baer and a ruptured tubal pregnancy was removed together with a large amount of blood clot. The small embryo was found within the tube. The patient made an uninterrupted recovery.

Two years later, on July 19, 1892, the patient returned, complaining of the same symptoms as before the previous opera-

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tion, but situated within the right side of the pelvis. She volunteered her belief that she was again pregnant outside of the womb. A physical exploration made at this time revealed a slight enlargement of the uterus with a small and sensitive mass to the right side. Contrary to the advice given her, she left shortly for the shore and was not again seen until August 10, when she gave the following history: On the night of August 6 she had experienced a very severe attack of pain, almost throwing her into a state of collapse. The following day there occurred a moderate discharge of blood from the womb, and on the next day she had five fainting spells. She reached home late in the evening of the 9th of August, and I saw her at 1:30 o'clock the next morning. She was then extremely pale and presented an anxious cast of countenance. Examination showed a considerable increase in the size of the uterus, while the tumor on the right side was much increased in size, and palpation through the abdominal wall and in Douglas' cul-de-sac revealed semifluid abdominal contents. The operation was performed the same day. The incision through the peritoneum was followed by the escape of a large amount of free and clotted blood. The tube, however, was found apparently unruptured, while a small fragment of placental tissue protruded through its fimbriated extremity. It was an instance of Bland Sutton's tubal abortion, so called. After the completion of the operation the small embryo was found, surrounded by its clear fluid, in the unruptured amniotic sac within the tube. The patient made a good recovery.

In addition to the foregoing, the authentic cases of repeated extrauterine gestation—that is, those that have been definitely demonstrated as such by operation or some subsequent and conclusive development, such as the discharge through the rectum or abdominal wall of fetal bones and débris—are those of the following surgeons, presented in their chronologic sequence: 1. Galliay,[3] the second pregnancy occurring five years after the first. 2. Oulmont,[4] the second occurring some years after the first. 3. Parry,[5] the second occurring some years after the first. 4. Lawson Tait,[6] the second occurring two and one-half years after the first. 5. Olshausen,[7] the second occurring one year after the first. 6. Herman,[8] the second occurring three years after the first. 7. Veit, Jr.,[9] the second occurring one year after the first. 8. Galabin,[10] the interval between the pregnancies not being stated. 9. Mackenrodt,[11] the second occurring six months after the first. 10. Reed,[12]

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the second occurring sixteen months after the first. 11. Coe,[13] the interval not being stated. 12. Hayden,[14] the interval not being stated. 13. Ross,[15] the second occurring four years after the first. 14. Frankenthal,[16] the second occurring fifteen months after the first. 15. Prewitt,[17] the second occurring fourteen months after the first.

Galliay's case I believed to be an undoubted instance, although no abdominal section was performed. At the time of the first pregnancy the woman advanced to term, missed her labor, and some months later began to discharge the fetal bones through the rectum, the discharge continuing for several months. She was perfectly well in 1829. The second pregnancy occurred in 1834, the movements of the child being felt. In the sixth month the patient again began to discharge fetal bones through the rectum, and ultimately made a perfect recovery, without delivery of a child per vaginam.

Coe's, Hayden's, and Prewitt's cases are of extraordinary interest from the fact that they are not only instances of repeated extrauterine gestation, but are also cases of successive tubal pregnancy in the same tube, the double gestation-sacs being discovered at the time of operation for the second pregnancy, and the fetal contents showing different stages of development, thus discountenancing the possibility of a twin tubal pregnancy.

There have been a few other cases of what have been claimed to be repeated extrauterine gestations, but the records have been based only upon clinical histories without corroborative operative findings, and have therefore not been considered as authentic in the present paper—*vide* Frommel,[18] Lopes,[19] Leopold, Winckel, Block, Peuch,[20] Taylor,[21] Meyer, of Copenhagen,[22] Veit, Jr. (second case), Siegenbeck von Heukelom,[23] Brown,[24] Kletzsch,[25] Boisleau,[26] Bröse.[27]

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NOTE.—Since this paper was written an additional case of authentic repeated extrauterine pregnancy, with two operations, is reported by C. B. Schoolfield in the Cincinnati Lancet-Clinic, February 19, 1898.

PUERPERAL INFECTION AND ITS PREVENTION.[1]

BY

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MY excuse for bringing this subject, upon which so much has been written, before you to-night is because the statistics of our city show that the average mortality of our parturient women has not diminished in the twenty years ending June 30, 1894. Death from puerperal infection for the year ending June 30, 1895, is only a fraction below the average for the preceding twenty years, notwithstanding our increased knowledge of the cause of this distressing disease.

By "puerperal infection" we understand all of the diseased conditions occurring in puerperal women caused by such organisms as gain access to the system by wound infection. This infection may be slight, as a local affection of the external

[1] Read before the Washington Obstetrical and Gynecological Society, April 16, 1897.

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genital organs; or serious, as when the internal genital organs are affected; or it may extend to the whole system, producing what has been and is yet by many diagnosed as "puerperal fever." As a matter of fact the graver forms of puerperal infection may or may not be attended with fever. Infection may be local and "putrid" and known as sapremia, or general, "septic," and known as septicemia. The former is produced by the organisms known as saprophytes, which develop in dead organic material and by their growth and development produce a "toxin" which may give rise to fever. Ptomaines and leucomaines are alkaloids that are formed during putrefaction in dead animal tissues. The latter are harmless unless their excretion is interfered with. Saprophytes are generally carried mechanically to the genital tract.

In septicemia the pathological changes are due to the introduction of pathogenic organisms which develop in the blood and other fluids of the living body as well as in dead tissue—*i.e.*, streptococci and staphylococci.

The two forms of infection may be present at the same time, as in a putrid and septic endometritis. In this variety of infection the organism may be prevented from gaining further access to the surrounding tissue or to the system by the protective resistance of the phagocytes. These phagocytes form the bulwark of our resistance against the invasion of the invisible enemy from without.

The causes of puerperal infection are predisposing and exciting.

Predisposing Causes.—There are many conditions which predispose a woman to disease during her puerperium. She has become plethoric, hydremic; the red blood corpuscles are fewer in number; the hemoglobin and serum albumin are in too small a proportion; the fibrin, however, is increased, as are also the white blood corpuscles. This increase of white corpuscles is a barrier of defence, protecting the susceptible patient from the possible attack of the micro-organism. The changes in the circulatory apparatus are marked: the blood vessels are thickened and their calibre is enlarged; there is also hypertrophy of the heart, and especially of the left ventricle. The pelvic lymphatics and veins are greatly dilated, especially predisposing to thrombi. The muscular tissues of the uterus have enormously increased, both for the purpose of protecting its contents and of expelling the child. Finally, at the end of labor the parturient canal may have many lacerations ready

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to receive the infecting organism, the tissues are bruised, the patient is exhausted from pain and loss of blood. If this be true of normal labor, how much greater is the danger in tedious or instrumental deliveries, where repeated examinations are necessary and the hands and instruments are introduced into the birth canal!

During a normal labor the uterine muscular tissue should contract with sufficient force to expel the child and also to close by pressure the veins in the placental site, and should remain contracted until the openings of the veins have become agglutinated. If, however, the contraction is not sufficiently forcible the mouths of these veins are closed by the formation of clots, which are in themselves fertile propagating grounds for the putrid or septic organism. If now the organism should gain an entrance, it is easy to understand how and why the infection should penetrate to deeper structures. Up to the time of labor we have had a normal physiological development, with a largely increased flow of blood and increased size of the blood vessels. The picture now is changed and a physiological *degeneration* takes place, with the blood stream in the other direction. The hypertrophic tissues have to undergo a process of liquefaction and be carried away by the blood and lymph. Primiparæ are more liable to infection for three reasons: 1. Labor is usually longer. 2. The birth canal is narrower. 3. The soft parts are usually softer.

Exciting Causes.—The exciting cause is the introduction of micro-organisms into the body of the woman. Whether they be introduced by way of an external abrasion and so through the lymphatics, or through the birth canal, the results may be just as serious. The sources of the infecting organisms are many and should receive most careful consideration from every practitioner of midwifery. Nearly sixty per cent of all parturient women who die in our city die from some septic infection. It behooves us, then, to bear well in mind the "sources" of this infection. It can be carried from one patient to another by nurse or attendant; it can be contracted from suppurating wounds; from decaying tissues outside of or within the body, as from decayed teeth, abscess of the ear, or abscesses located elsewhere; from purulent or muco-purulent nasal catarrh; and from zymotic diseases, especially diphtheria and erysipelas. Without having any of these diseases under your care, you may convey to your trusting patient a colony of the organisms carefully secreted about your own person, if you do not observe the rules of surgical cleanliness.

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The source of infection and the necessity for disinfection were appreciated as long ago as 1847 by Semmelweiss, but did not gain support until 1886 when Lister applied the discoveries of Pasteur. This period marks the alpha of our knowledge of the germ theory of disease. And yet even at this late date there are men who have failed to learn their alphabet, and, if having learned, fail to apply its teachings. For this there is no legitimate excuse. The day is fortunately past when all diseases which cannot otherwise be accounted for are believed to be the divine wrath visited upon sinful humanity. Some months ago I was called into the country, some six hours by rail, in consultation with a leading physician, to see a case that had been suffering from "nervous prostration" since her last confinement, some four months before. Before seeing the patient I had some conversation with the doctor, and inquired incidentally regarding the percentage of puerperal infection or fever occurring in his country work. He told me that out of over a thousand deliveries he had never had a case. Then we examined his patient and found an offensive purulent discharge still oozing from her uterus, as it had been more or less since the birth of her child.

Since the introduction of bichloride of mercury as an antiseptic in this country by Garrigues in 1883, the mortality among parturient women from infection has been reduced to less than one-tenth of one per cent in his hospital work.

In the very instructive paper read before this Society by H. D. Fry in 1895, he presented charts giving the mortality statistics for twenty years from all puerperal diseases, from puerperal infection, and all causes exclusive of infection. It is interesting to compare the average mortality for twenty years with the year following his report:

Average of *all* puerperal diseases for twenty years, 10.7 per 1,000 deliveries.

Average of *all* puerperal diseases for year ending June 30, 1895, 10.7 per 1,000 deliveries.

Average of *septic infection* for twenty years, 7.03 per 1000 deliveries.

" " " " " year ending June 30, 1895, 5.7 per 1,000 deliveries.

—showing a slight improvement for one year of 1.33 over the average for the twenty years.

Out of the 50 deaths occurring in the puerperal state, 27 were from infection.

Where thorough asepsis and antisepsis is carried out it is

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possible now for maternity hospitals to report more than a thousand cases of labor without a single death from this cause. Only a few years ago such a thing was thought impossible. Before the introduction of this method of preventive treatment their mortality was much greater than in private practice; but now the mortality is just the reverse, and a parturient woman is safer in a well-regulated lying-in hospital than at her own home.

Puerperal infection is a preventable disease, and can be prevented in private as well as in hospital practice, if only the accoucheur will insist upon thorough aseptic and antiseptic measures being carried out by his nurses and by himself. Too often has he contented himself by washing his hands with soap and water, not always using a scrubbing brush, and dipping his hands in bichloride solution of uncertain strength, then, wiping them on a towel, he thinks he is ready for work. If his nose itches he will rub it with the back of his hand, feeling that he is being very careful by protecting his fingers; or he will take out his watch and observe the duration of labor pains, and yet he thinks he has conducted his case aseptically. We cannot conduct our private cases as in hospitals, but there is a vast amount of room for improvement. The hands should be thoroughly cared for, not only just before your attendance, but the nails should receive daily care by filing, cleaning, and scrubbing. The hands, hair and nails, body and clothing require special care if you are treating wounds or suppurating cavities. After the hands and arms up to the elbow have once been prepared for service by soaking them for the last time in bichloride solution 1:1000 or one per cent creolin, they must neither be wiped nor touch any object without again being submerged in the antiseptic solution. Bichloride tablets, creolin, soap, and scrubbing brushes should always be carried in your obstetric satchel for use. The patient should receive a warm tub bath and put on clean clothes; the external genitals should be scrubbed with soap and water, then with creolin solution or bichloride, and a vaginal douche with a sterilized glass or metallic tube may or may not be required. Never use a gutta-percha tube unless it be kept soaked in bichloride solution.

Vaginal examinations should be made only when necessary, the fewer the better, and never by the nurse. All instruments are sterilized before being used. In protecting the perineum from too rapid descent of the head, a piece of absorbent lint or

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gauze is folded three or four thicknesses and about four by six or eight inches, and held against the parts after being soaked in the antiseptic solution and wrung out. After delivery of the child the placenta is expressed by the Credé method, but not for from fifteen to twenty minutes, great care being taken to remove all of the placenta and membrane. Lacerations should be repaired at once. A vaginal douche may or may not be required. The vulva should be again washed and dressed with some antiseptic dressing, and covered with gutta-percha tissues, and a "T" bandage applied. The antiseptic dressing should be reapplied whenever it becomes soiled. Whenever the bowels or bladder are emptied the external parts should be dressed with your antiseptic solution and dressing reapplied. The nurse, as well as the attending physician, should be made to understand the necessity for surgical cleanliness and the proper use of antiseptics.

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PROPHYLAXIS OF PUERPERAL SEPSIS.[1]

BY

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FOLLOWING the great achievements of aseptic and antiseptic surgery, obstetrics has also taken advanced standing. In maternity hospitals obstetrics has a creditable record and has perhaps kept pace with surgery. Of private practice, to which we confine this paper, the same cannot be affirmed. There has been a lowering in the mortality and in the morbidity from puerperal infection, but they are greater than they should be. It must, however, be admitted that aseptic midwifery has inherent difficulties which will always be overcome with less facility than the corresponding ones in surgery. The surgeon can elect, within convenient limits, the time of operating on a given case. He has assistants and nurses who are familiar with his methods and who are trained in the details of practical aseptic and antiseptic measures. He confines his work to

[1] Read before the Cincinnati Obstetrical Society, December 9, 1897.

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surgery, enabling him to avoid many sources of infection and allowing time to prepare for clean work.

Obstetrics is in the hands of men in general practice. They come in contact with cases from which infection may be carried and cannot avoid them. They are called hurriedly to cases of labor, and elaborate preparations and precautions are out of the question. Cases are frequently difficult, making long-continued vigilance necessary in preventing infection. The proper preliminary preparation of the patient is often not feasible because a competent nurse cannot be afforded. But the principal reason that aseptic and antiseptic measures are not applied in obstetrics so strictly as in surgery is because they are not equally and uniformly necessary.

It is perhaps possible for a physician to deliver in succession a hundred women in utter disregard of aseptic measures and still have no fatal result. In surgery the results would be so disastrous as to compel the adoption of better methods.

Men who have had good results in spite of a faulty technique are loath to make radical changes involving additional time and labor. It is too much to hope that all such men will discard such methods; but it is reasonable to believe that no physician entering the profession will have the temerity to adopt such methods in spite of the warnings of his teachers and in the face of the admirable hospital records which have been largely achieved by aseptic midwifery.

It is probably impossible that the mortality rate in private practice can be brought so low as in a well-regulated maternity hospital, for the twofold reason that such institutions usually have obstetricians who are more than ordinarily skilful, and because it is impossible to apply aseptic details so thoroughly and so precisely in private as in hospital practice.

Several years ago the Obstetric Section of the New York Academy of Medicine passed resolutions to the effect that it is the duty of every physician practising midwifery to surround his cases in private practice with the same safeguards that are used in hospitals.

This may be possible among the better classes, but the resources and the environments of a large proportion of private cases do not admit of the elaborate precautions of the hospitals. The aim of the conscientious physician is perforce to adopt a plan which embraces the essentials of asepsis, but which is not burdened with unnecessary, time-consuming details.

The most urgent requirement is that the physician approach

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each case with clean hands; and all intelligent physicians try to do this. The difficulty of cleansing the hands would be considerably diminished if we were more careful in avoiding sources of contamination. For instance, in opening an abscess it is not necessary to bathe the hands in pus. By the free use of absorbent cotton or gauze it is possible to avoid soiling the fingers in the least. Moreover, after such an exposure the time to disinfect the hands is immediately. In this way the physician would escape the infection of his clothing, and the infectious material would not have time to get fixed in the epithelial crypts of the skin. Similar precautions regarding hands and clothing should, of course, be observed when attending contagious diseases. Incidentally such precautions have a good moral effect, and are more effective than any verbal warning in preventing the spread of such diseases. In this connection the propriety of attending a case of labor while treating a case of erysipelas or diphtheria is not considered, but simply the proposition that such care in avoiding contamination and such prompt disinfection after exposure assist materially in securing asepsis by the obstetrician whenever he may be called to a case of labor. Such precautions are at first irksome, but with repetition they become almost automatic and hence easy.

Bacteriological investigations prove that the external genitals furnish favorable conditions for the development of pathogenic organisms. The deduction is plain, and no one can be justified in omitting this part of the preparation. That the external parts, and everything which comes in contact or which may come in contact with these parts, should be surgically clean is the belief of all men who speak with authority.

When we consider the propriety of going further and attempting to sterilize the vagina we encounter differing opinions. Bacteriologists find pathogenic organisms in the vagina, but they also find conditions there which are unfavorable for the development of most of these organisms. Some of the latest investigations show that the vaginal secretions during pregnancy have an increased bactericidal power.

If we look to statistics to decide whether or not we should use antiseptic vaginal irrigation prior to labor, we get both affirmative and negative answers. Those who oppose the method call attention to the great difficulty of sterilizing the vaginal mucous membrane. Their leading argument is that irrigation carries away the vaginal secretions and thus destroys one of the natural safeguards. On first consideration this

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seems a strong argument; but when we reflect that the inhibiting factor in the vaginal secretions is the acid reaction, and that labor involves the discharge into the vagina of large quantities of alkaline fluids, the argument loses much of its force.

The usual method of delivering the woman on temporary pads, which are to be removed after labor, involves several conditions which conflict with an aseptic technique. It is often difficult to secure pads which are clean; there is danger of infection from fecal matter; it is very difficult to cleanse the parts of blood and amniotic fluid at the termination of labor. These objectionable features can be eliminated by bringing the woman's hips to the edge of the bed before the end of the second stage and using a large-sized Kelly pad. In this position water from a fountain syringe can be freely used to wash away fecal discharges, and after labor the parts can be easily and thoroughly cleansed.

It doubtless frequently happens that cases which have been properly guarded to the end of the second stage are infected in the delivery of the placenta. After the birth of the child there is often undue haste to terminate the labor. At this time conditions essential to infection exist, and unless the accoucheur assures himself that the external parts and the finger or fingers which he will carry into the vagina are clean, he will likely deposit infectious material in the wounds which are almost invariably present. This danger is greatly lessened by the Credé method, but this method usually requires the insertion of a finger in the vagina. Infection at this time is inexcusable. The delivery of the placenta is properly a deliberate procedure and there is ample time for thorough cleanliness.

The importance of frequent cleansing of the external genitals after labor, and of keeping a sterilized pad snugly applied, is universally admitted. In many instances it is so carelessly done as to be practically of no value.

In order to carry out an aseptic technique the earnest co-operation of both patient and nurse is necessary. It seems reasonable that such co-operation could be best secured by having printed directions in regard to the preliminary preparation of the patient and the routine duties of the nurse after labor. Such directions have a decided advantage over verbal instructions. They save time. They are less likely to be misunderstood, and are not so likely to omit important details. They can be referred to at any time in case they are forgotten. They are more likely to be observed, because with most indi-

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viduals greater credulity and importance attaches to a printed proposition than to the same statement expressed verbally.

We have thus far considered methods of preventing the entrance of pathogenic organisms. While these are the most important factors in preventing sepsis, the discussion would be incomplete without a consideration of the susceptibility of the tissues of the genital tract to microbic invasion and the means of diminishing such susceptibility. It is well known that to have microbic invasion there must be trauma. It is true that in all cases of labor there is trauma at the placental site; in many instances this is the site of primary infection. In fatal cases it is perhaps usually the site of infection either primary or secondary.

In many cases primary infection occurs in a lacerated cervix or perineum, or in uterine or vaginal tissue that has been bruised and has cells of low resisting power. The importance of avoiding such injuries is not properly appreciated by many practitioners. The time will come when in surgery as well as in obstetrics more importance will be attached to damaged tissue as a factor in the etiology of sepsis. Asepsis does not imply that the wound is free from germs, but only that those present are insufficient to produce sepsis. If in a given operation the resistance of the cells is seriously lowered by mechanical violence or interference with the blood supply, such cells are usually susceptible to microbic invasion and the few pathogenic bacteria which would be destroyed or rendered innocuous in tissues of ordinary vitality are enabled to multiply with great rapidity.

If two surgeons could be found who were equally thorough in surgical cleanliness, it would not follow that their results in parallel cases would be identical in regard to sepsis. If one were a better operator, subjecting the tissues to less disturbance and violence, he would have the fewer septic developments. The same is true in obstetrics. Of two men equally thorough in cleansing hands, instruments, and patient, the results will be in favor of the man possessed of the best judgment concerning the means to be employed in each case and the most skill in carrying out such plans.

If the head is allowed to remain wedged in the pelvis sufficiently long to produce necrosis of tissue, not all the aseptic and antiseptic precautions possible would save the woman from septic manifestations.

The premature use of the forceps, causing laceration of the

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cervix; traction in a wrong axis, causing unnecessary bruising of tissue; awkward application of forceps, allowing the edge of a blade to stand out from the head and damage the soft parts; the unskilful closing of a perineal laceration, leaving sinuses for the accumulation of discharges—all such unfortunate blunders furnish some of the necessary elements of infection.

Time does not permit a consideration of the repair of damages. The worst damages unfortunately cannot be repaired.

I believe the danger is often augmented by suturing tears in which the tissue has been subjected to long-continued pressure or repeated bruising. Better results would follow packing with sterilized gauze, replaced often enough to insure good drainage.

PUERPERAL GANGRENE.[1]

BY

MAGNUS A. TATE, M.D.,
Cincinnati, O.

PUERPERAL gangrene is rare, and it is with pleasure that I present the history of a unique case to the Cincinnati Obstetrical Society. Gangrene is death of the part *en masse* and is generally divided into two main varieties, the dry and moist. I shall deal almost exclusively with the dry form.

Dry gangrene is often spoken of as mummification, and gives to the tissues a dried appearance. The watery elements of the blood are carried off; there is a gradual diminution in the arterial supply, while the outflow of venous blood continues unobstructed. The soft structures become smaller, take on a hard, leathery feel, the skin wrinkles, the temperature of the tissue falls, and soon the color changes to a greenish-black. The most common example of dry gangrene (generally spoken of as typical) is the so-called senile gangrene. I am able to find but few cases where the puerperal state has been complicated by gangrene, and as a matter of interest I give a short history of each.

CASE I.—Mrs. G., age 36; healthy and active. Delivered of her fourth child; lochial and lacteal secretions were natural. On the morning of the fourth day she had a severe rigor, and

[1] Read before the Cincinnati Obstetrical Society, December 9, 1897.

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when seen her countenance was anxious and distressed, her face pale, the eyes sunk and languid, and she was screaming from excruciating pain, referred principally to the upper and inner portion of the left calf, which was cold and tense, but not increased in size. This condition extended to the foot, on the fore part of which a large spot of ecchymosis appeared, most evident upon the metatarsus and creeping upward to the ankle joint. The uterus was perceptibly larger than usual. Pulse was small and rapid, thirst urgent, tongue dry and coated, some nausea but no vomiting; lochia had ceased and milk was scanty. In the evening the pulse was feeble, the tongue parched and of a fiery red hue, the mind sluggish and wandering; the discoloration had reached the swell of the calf of the leg (having a wavy margin) and was still advancing. The following morning vesication had begun on the spot first discolored and the patient was rapidly sinking. Death put an end to her sufferings early on the fourth day of the disease and the eighth day after delivery.

Case II.—Patient aged 25. Ten days after delivery of her first child she was seized with gangrene of the lower extremities. The gangrene involved the foot and leg nearly to the knee joint; the patient was greatly exhausted and anxious, but not suffering severely. The limb was amputated at the lower third of the thigh, but not a drop of blood followed the knife. She died next day, sinking gradually without suffering.

Case III.—Patient had previously borne a large family. Last labor was easy, for it came prematurely; child dead born. On the third or fourth day subsequent to delivery fever supervened, followed by swelling of the left leg, which was attended by great pain and suffering. In the course of two or three days gangrene set in, and she died ten days after delivery.

Case IV.—Patient aged 39. Pregnancy favorable until within a month of delivery, when she suffered from cough and great debility. Labor, however, was expeditious; lochia small in quantity and the afterpains slight. The woman continued doing well for ten days, when symptoms of pleuritis with considerable constitutional disturbance presented themselves. Two or three days after her recovery from the pleuritic attack she complained of pain in the heel, passing from thence to the great toe and ankle joint. Pain was treated as neuralgic, but with no good result. At length a livid spot appeared on one of the toes, the temperature of the foot and leg gradually diminished, and there was an impaired sensibility. The toes

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severally became black, and this appearance extended so as to involve the foot and ankle. The line of demarcation formed about two inches above the ankle joint, and amputation was practised above the knee. Recovery was complete, and she has since borne two children. The above four cases are taken from Simpson's work on "Obstetrics."

CASE V.—Swayne[1] relates a case occurring during the seventh month of pregnancy. The disease came on after a long journey and attacked the integuments and muscles over the space of the size of a man's fist on the upper and inner third of the right thigh. The symptoms had existed about four days before the occurrence of premature labor, but were not very severe until after delivery, when they became much intensified, and proved fatal early on the third day. There was no injury, wound, or erysipelatous inflammation to account for the occurrence.

CASE VI.—Patient aged 25, primipara. Had had typhoid fever three years ago, but since that time had been perfectly healthy. Height, five feet six inches; weight, one hundred and sixty-five pounds. No history or appearance of any syphilitic lesion. Family history negative. Pregnant six months and a half when first taken sick at her home in Springfield, Ohio. The following is as correct and detailed a history as I have been able to secure:

August 9, 1897: Patient took a bath, caught cold, and from that time her sickness began. August 10: Was so nervous all day that she felt like crying. August 11: Early in the morning an edematous condition was noticed under the eyes and about the feet, and later in the day (the edema increasing constantly) the abdomen began to swell and her breathing became somewhat labored. Headache was intense. Under the care of the family physician the swelling subsided, and she seemed to improve greatly in the next four days. August 20: Woke up with a violent headache, and before a physician could be summoned she had a convulsive seizure; this was followed by a second, and this again by a third attack which was longer and more intense than the other two. During the third attack patient bit her tongue and quite a hemorrhage followed. Vomited freely before and after each convulsion. August 25: Patient was brought to Cincinnati and placed in the Jewish Hospital. At this time her breathing was so labored she could not lie down, and rest had to be secured by hypodermatics

[1] Transactions of the Obstetrical Society of London, 1884.

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of morphia, which, she stated, were given to her very freely. August 27 and 28: The dyspnea rapidly disappeared and her general condition greatly improved. August 30: The swelling of the abdomen had nearly all disappeared and there was no perceptible trace under the eyes. In the evening she complained of pain in the abdomen, which came on regularly and increased in frequency, and the following morning, September 1, 1897, she gave birth to a seven-and-a-half months dead child. Patient had a nearly painless labor. September 2: She complained of a sleepy feeling in the left foot, with some pain which subsided toward evening, and on the following day she was very comfortable and entirely free from pain. September 9: The right foot began to have a sleepy feeling in it, which in turn (within a few hours) was followed by the left, and in the evening a bluish patch appeared on each ankle. She complained bitterly of pain in the feet and ankles. The bluish discoloration spread rapidly up the legs. Patient left the hospital and I was called to see her. Upon examination I found that the gangrenous condition involved both feet and legs nearly to the knees, having a wavy outline in front and extending up to the popliteal region posteriorly. There was no line of demarcation present. The feet were turned in and had a greenish-black, dry, and somewhat leathery appearance. To the touch they were cold and clammy, the skin was wrinkled, and there was one spot of vesication on the right leg posteriorly and two on the left. I was unable to detect any pulsation in the arteries of the feet, and her statement that they had a numb, woody feel seemed to me very applicable. The legs above the knees were warm, but the pulsation of the femoral artery could not be detected. No dyspnea was present; breathing was regular; there was no heart murmur, but a slight irregularity in beat, ranging from 100 to 120 per minute; the mind was clear and patient perfectly rational. Bowels were constipated and urine loaded with albumin. Pain in the feet and legs seemed almost unbearable at times. September 20: For the first time there was fever, her temperature being 100°, no doubt due to infection, and toward evening there was a perceptible odor of dead tissue. September 21: Temperature 103°. September 22: Temperature 104° in the morning, and patient died the following morning at 2. Her mind remained perfectly clear until twenty-four hours before death. A few hours before death there was a marked disintegration of tissue; a large slough appeared on the left leg posteriorly and another one on

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the right leg posteriorly and to the inside. At no time was there any evidence of a line of demarcation. A complication which she complained of at nearly every visit was two huge bed-sores, which developed about the seventh day after confinement. We find that patient was confined September 1, 1897, bed-sores developed in seven days, gangrenous patches in nine days, and death twenty-three days after confinement. The following physicians saw the case with me: Drs. Bramble, Kiely, Taylor, and Ransohoff.

Etiology.—In the typical senile gangrene we have a calcareous condition of the arteries and a disturbance in function of the vaso-motor nerves, the circulation in an extremity being much impaired. The long continuance of ergot has produced sloughing, an example being gangrene of the big toe. This drug is supposed to act by keeping up arterial spasm. Independently of any disturbance of the circulation, we may have destruction of the cells of the soft structures. The tissues of the body at large may be in an impaired condition from long-continued fevers or in individuals suffering with diabetes. Gangrene has resulted from injuries, pressure, inflammatory swelling, intense heat or cold, and also in parts deprived of their nerve supply. The tissues in dry gangrene are not invaded by microbes, and therefore become mummified, producing slight or no constitutional disturbances; but when the tissues break down the staphylococcus and streptococcus find a fertile soil. My case was a typical example of this. William Hunt, after a thorough investigation, claims that diabetic coma holds second place to traumatic gangrene, including cases from frost-bite, burns, and scalds. Rosenbach found a peculiar spore-bearing bacillus, which for a time was supposed to play an important rôle in the causation. Koch, experimenting with the field mouse, produced a progressive gangrene from inoculation with chain micrococci. Double infection of gangrene and tetanus may occur, while septic infection is rarely or never seen with gangrene and may be explained by microbic antagonism. Senn[1] says: "Gangrene resulting from mycosis of the tissues is caused by one of three well-defined conditions. 1. The microbes are so numerous in the capillary vessels that their presence interferes mechanically with the blood supply, and death of the part ensues in consequence of greatly diminished or suspended nutrition. 2. The microbes in the tissues produce ptomaines which destroy the tissue by their direct destructive action on

[1] Transactions of the American Medical Association, 1888.

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the protoplasm of the cells. 3. The specific inflammation caused by the microbic infection is so intense that the inflammatory products in the paravascular tissues accumulate so rapidly and in such abundance that nutrition is suspended by impairment or suspension of the arterial supply, or mechanical interference with the venous return of the blood from the part, or both of these conditions combined. For these reasons no one variety of microbes can be the sole cause of gangrene."

Treatment.—We may divide the treatment into the prophylactic, medical, and surgical. 1. *Prophylactic:* Remove all causes which may favor the development of gangrene, and adopt measures to promote circulation. 2. *Medical:* Try to establish collateral circulation. We may practise moderate elevation of the limb, if that be the part affected. Disinfect the part; try to keep it dry, odorless, and warm. If it be an extremity we may wrap the part in cotton or wool. The patient may suffer excruciating pain; if so there is no alternative but the free use of morphia. We may try to build up the system, put the patient on a nutritious diet, milk being preferable, and do not let the bowels clog. Alorosoff gives the history of two cases of the extremities where galvanism gave excellent results. In one of the cases amputation was performed, but the gangrene was not arrested until galvanism was tried. 3. *Surgical:* Naturally amputation is the only safeguard, but it is a wise physician who knows when to amputate, and few care to use the knife upon an almost hopeless case, and duty must be backed by a courageous heart. If we can discover pulsation in the main artery in a limb, amputation should be at the point at which pulsation is detected, and never amputate low down. If our patient be an elderly person or the cause be diabetes it is a hopeless case and amputation should not be practised.

A DEVICE TO SIMULATE THE FETAL HEART SOUNDS IN OBSTETRIC MANIKIN INSTRUCTION.

BY

HENRY WALLACE, M.D.,

Instructor in Obstetric Manikin at the Long Island College Hospital, Brooklyn, N. Y.

In the course of some years of teaching in the obstetric manikin department of the Long Island College Hospital, the

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author has very frequently felt the need of a means to simulate the fetal heart sounds in the manikin room.

Having been in the habit of using the text book simile of "a watch under a pillow," it occurred to him that a ticking watch might actually be used to fix in the students' minds the location of the heart sounds in the various presentations and positions.

To do this a good-sized fetal cadaver was selected and a three-inch incision made over its sternum in the median line. The bone was bared and removed by scissors, exposing the pericardium. The pericardial sac was incised its entire length, the heart exposed and removed, after ligating the great vessels to prevent the escape of injection material. The edge of the pericardial wound was then attached to the lips of the skin incision. This shut the sac off from the rest of the thoracic cavity.

A cheap, loud-ticking watch is sealed up in a rubber "gonorrhea" bag to keep it dry, and placed in the pericardial sac. A few turns of a roller bandage around the fetal thorax will retain it in place. The fetus may now be sealed in its rubber uterus with a suitable quantity of water (liquor amnii), placed in the phantom, and several layers of towels superimposed to represent the abdominal walls.

It might be said that the object of opening the pericardial sac is to place the watch in as nearly as possible the location of the heart, for if the watch were merely fixed to the chest on the outside of the body it would not illustrate the fact that the anterior surface of the child does not transmit heart sounds as well as does its dorsum, owing to interposed fetal members and liquor amnii.

We may now demonstrate the following:

First, that the fetal heart sounds are best heard in dorso-anterior positions, and faintly, if at all, in dorso-posterior positions.

Second, that the fetal heart sounds are best heard on that side of the median line in which the dorsal plane lies.

The object of this device is not to familiarize students with the characteristics of the fetal heart sounds *per se*, but to impress upon them their location in the various presentations and positions.

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PLACENTA PREVIA WITH MALFORMED FETUS.

BY

EDWARD J. HADFIELD, M.D.,
Phenixville, Pa.

(With illustration.)

In obstetrical practice we often come in contact with peculiar conditions which occasionally develop into extraordinary cases. Such was my experience in the case I am about to describe.

This patient was 38 years of age and the mother of four bright girls ranging in ages from 12 to 3 years. In this pregnancy the patient had noticed nothing unusual until near the eighth month, when she had a few slight hemorrhages which she thought were about to develop into a miscarriage. Upon examination I found slight dilatation of the external os uteri. I put the patient to bed and within a few days she was out again, but shortly the same symptoms returned, and after the same treatment and rest the patient improved, but had to send for me again within two or three days.

This time I found her suffering with strong and frequent labor pains. After a careful examination I decided that the child was dead and that there was placenta previa centralis, but the exact presentation at this stage was a puzzle.

In the course of an hour and a half the os uteri was sufficiently dilated to allow me to remove the placenta, and then, to add to my surprise, I found there was no cord; instead there was an elongation of a very thin, delicate membrane extending from the navel, about one inch in length and surrounding the blood vessels, serving as the connecting link from the placenta to the child. Upon removing the placenta this connecting elongated membrane readily tore apart, causing a complete separation of the placenta from the child.

At last I discovered that I had a transverse presentation, which I could not determine before owing to the deformities of the child in the uterus. Finally I managed to change it into a breech presentation, and even then there was considerable

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of a puzzle about it, owing to the elongated pouch extending from the spine and pelvis posteriorly. However, from this point on, the delivery lasted only a few minutes and was finished without any further difficulty. The mother lost considerable blood during the delivery, but she stood it well and made a good recovery.

The several peculiar conditions and deformities of the child can be recognized at once from the accompanying illustration.

The child weighed four pounds and six ounces; the only



properly developed part was its head, and this was rather large in comparison to the body. The arms, legs, feet, and hands were all more or less deformed; also some of the muscles were over-developed and some but slightly developed. The child's chest was void of its organs and undeveloped, and its walls were almost coalesced. The large mass protruding from the abdomen (ectopia abdominalis) consists of the abdominal viscera and the thoracic organs; the diaphragm was a thin, tissue-like membrane, lying on top and slightly to the front of the liver and bowels, and upon this the lungs and heart

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rested. The entire mass was covered with a thin, frail, transparent membrane. The elongated pouch (spina bifida) attached to and extending downward from the lumbo-sacral region was filled with a light-colored fluid; the pouch was covered all over with skin, except a small portion at the lower end which was covered by a thin, transparent membrane.

A singular and interesting feature of this case was the absence of the least sign, internally or externally, of any development of the sexual organs or of the anus. The rectum ended blindly at the upper border of the sacrum, and the bladder had a small tube attached to its lower surface which was one-quarter of an inch in length and solid at its end.

243 CHURCH STREET.

SALPINGO-OÖPHORECTOMY BY THE INFRAPUBIC ROUTE.

BY

CHARLES W. STROBELL, M.D.,
Rutland, Vt.

(With two charts and two illustrations.)

THE recent revival, under the reign of aseptic surgery, of intrapelvic operations by the vaginal route began some years ago, when scattered reports indicated increasing faith of gynecic surgeons in the practicability of vaginal asepsis and feasibility of the vaginal route in a certain proportion of operative cases. These reports included, primarily, minor operations only—*i.e.*, incision of pelvic abscess independent of tube or ovary. This class of cases, treated in this way, and drained, gave almost invariably good results, at least as regards the urgent symptoms, the majority terminating in complete cure. Later both the anterior and posterior peritoneal pouches were opened for the removal of diseased ovaries and tubes, the separation of adhesions, enucleation of subserous fibroids, reparation of vicious malpositions, etc., as well as for the chief and crowning operation of pelvic surgery, gynecologically speaking—total hysterectomy. The battle, fought *pro* and *con*, has been fierce but decisive, and now these operations are established upon a firm foundation.

It is not my purpose to review in detail all that has been done in this particular line, these preliminary remarks being

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designed merely to introduce the subject, and in a manner pave the way for the presentation of the following report of two cases operated upon by this route. They are not presented because of special pathological interest in themselves, but to demonstrate and corroborate an additional surgical resource, available when the patient will not submit to abdominal section, and withal, in suitable cases, equally effective.

CASE I. *Multilocular Ovarian Cyst.*—Mrs. N., American, age 27; married six years; multipara; last labor two years previous. Complains of severe dysmenorrhea; painful coition; profuse fetid and irritating leucorrheal discharges, staining napkins; vertical headaches; constant pain in lumbo-sacral and inguinal regions; pelvic drag; distension of abdomen; sluggish bowels; painful defecation; lack of appetite; heavily coated tongue, and fetid breath with eructation of gas. Is listless, dejected, has no refreshing sleep; has muscular and nervous debility. Family history free from discoverable tuberculous or other taint. Has always been in delicate health. Heart, lungs, liver, and kidneys are negative.

Physical Examination.—Abdomen tympanitic; no special increase of pain upon pressure in inguinal regions, nor flatness upon percussion. Perineal laceration in second degree; vaginal prolapse, though incomplete; cervix presenting just within ostium vaginæ, its long axis parallel with the urethra; cervix patulous, exuding thick muco-purulent secretion; uterus subinvoluted, in extreme retroversion, and quite firmly fixed in left lateral position by inflammatory adhesions. Bimanual examination quite painful. Somewhat to the right of the uterus and occupying Douglas' pouch was found a slightly movable, irregularly lobulated cystic mass the size of a large goose egg. Bimanual pressure on this mass caused pain, the accompanying tube thickened and tender. Slight sympathetic tenderness of adnexa on opposite side.

Diagnosis: Ovarian cyst and chronic metritis with its contingents. Indications: Curettage, posterior colpotomy, separation of adhesions, removal of cystic mass, and shortening the round ligaments. The proposition to shorten the round ligaments was rejected by the patient.

Preparation.—Three days preceding operation vaginal irrigations of bichloride 1:5000 were given every fifth hour, together with the usual preparations as for abdominal section.

Operation.—Ether narcosis, preceded by a hypodermatic injection of one-quarter grain of morphia, one one-hundred-and-

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fiftieth grain of atropia (routine); Trendelenburg-lithotomy position; usual preliminary aseptic precautions; Edebohls' speculum, with sufficient weight in pail to strongly retract perineum; curettage; uterine cavity swabbed with carbol-iodine and irrigated with sterile water.

The anterior and posterior lips of the cervix were then taken in the grasp of a double tenaculum forceps, and the cervix elevated and dragged in the direction of the meatus urinarius, a wide retractor depressing the perineum in the opposite direc-

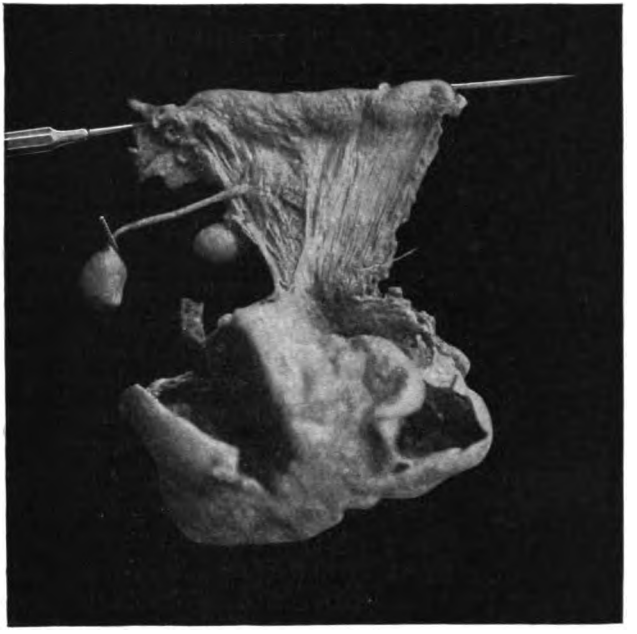


Fig. 1.—Multilocular ovarian cyst.

tion. A semicircular incision was made through the vaginal wall two centimetres above the plane of the external os, beginning on the right side, below the insertion of the broad ligament, and sweeping posteriorly around to a corresponding point on the left.

By blunt dissection with the finger, keeping close to the uterus, the recto-vaginal pouch was opened, the cystic mass readily presenting. This was seized with forceps, the contents of two of the cysts (simple serous) evacuated on account of their size, allowing of easy withdrawal, subsequent ligation, and

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removal. This done, the uterus was next freed of adhesions, the left tube and ovary brought down, examined, found normal, and returned.

Dressing.—Small wick of gauze in posterior pouch; cervix and vagina freely dusted with iodoform powder; strip of bichloride gauze laid loosely in vaginal canal.

After-treatment.—Patient rallied well. Gauze was removed

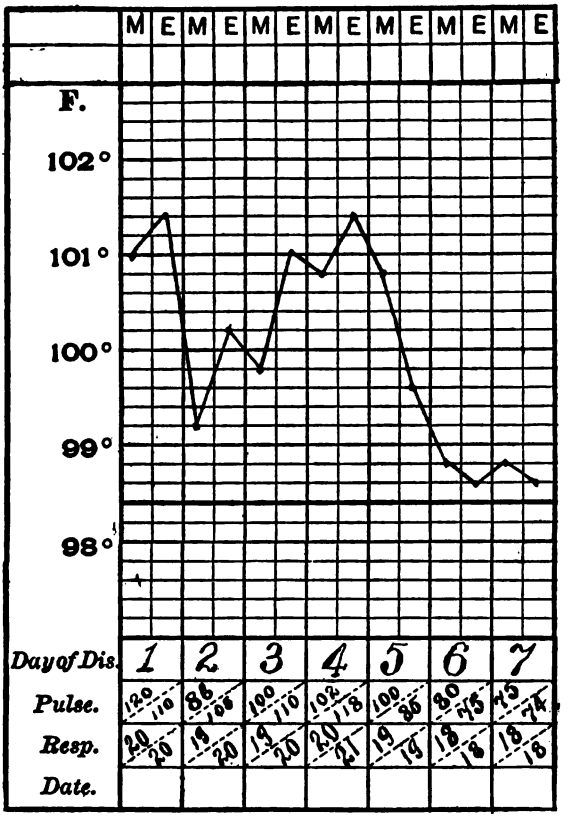


CHART 1.

on second day under gentle 1:5000 bichloride irrigation. One to 10,000 bichloride irrigations each fifth hour were now instituted, administered with a long, slightly curved one-quarter inch glass irrigating tube attached to douche-bag tube, the patient being always requested to "strain down" at the end of the douching, to expel all the bichloride solution, thus avoiding dangerous absorption. Perfect recovery ensued after some slight sepsis lasting about one week after the operation. This

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was, in my judgment, due to the employment of peritoneal drainage. The peritoneal cavity should have been closed at once.

The care of the stomach and bowels was in all respects as after an abdominal section, as the same conditions are present in these cases, the only difference being that the peritoneum has been opened in a different location.

We have the same nausea, the same thirst, the same craving for tabooed food, the same serous exudate calling for absorption, the same, if not greater, danger of septic infection, and the same urgent need of free alvine evacuations at the earliest possible moment after the operation.

CASE II. *Chronic Interstitial Salpingo-oöphoritis.*—Mrs. L., American; married; nullipara; suffering with a mild recurrent attack of pelvic peritonitis. Condition treated by daily boroglyceride tampons, hot strong magnesia sulphate enemata twice daily, rest in bed, and light diet. After one week enemata were discontinued and ichthyol tampons substituted for the boroglyceride. A few days of this treatment prepared the patient for a critical examination. This gave the following data:

Examination.—Base of bladder tender. Cervix, long axis presenting anteriorly and quite sensitive; os patulous, small mucous polyp projecting therefrom; uterus tender, retroverted in second degree, and adherent. Right ovary, tube, and broad ligament normal as regards dimensions, but abnormally sensitive to bimanual, pressure causing nausea and dull radiating pain. Left parametrium thickened with inflammatory exudates; left ovary and tube in complete prolapse, encountered in recto-vaginal pouch, and extremely sensitive to touch. Pressure upon the cervix in left latero-posterior direction causes pain deep in pelvis. Lying upon the back is always painful. The suffering from dyspareunia for the past few years is described as "simply awful," continuing for about three hours after provocation. Dull aching pain in sacral region during and continuing after defecation, radiating over lower part of abdomen, causing faintness and nausea and compelling patient to lie down.

As this condition had existed for years without other than temporary relief from local treatment, it was decided to remove the prolapsed ovary and tube by posterior colpotomy, preceded by curettage, the uterus being at the same time freed from inflammatory adhesions.

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The usual operative preliminaries incident to preparation having been complied with, the various steps of the operation, as in the preceding case—until entrance into the peritoneal pouch—were effected. The left side of the pelvis was found to be full of recent and old adhesions, which bled freely when separated. The fundus of the uterus was caught in a Skene curved tenaculum and forcibly retroverted, bringing the adnexa within comparatively easy reach. Through the opening could be seen several thin-walled parovarian cysts with broad attachments. These were unavoidably ruptured during the



FIG. 2.—Chronic interstitial salpingo-oophoritis.

manipulations, hence are not seen in the specimen. The ovary and tube were drawn down through the opening when fully freed, and the pedicle ligated with silk. After oozing had ceased the lips of the incision were allowed to fall together, iodoform powder freely distributed, and vagina loosely packed with gauze.

After-treatment.—Vaginal dressing was removed after twenty-four hours, under bichloride irrigation, and not renewed; 1 : 10,000 bichloride irrigations were kept up, as in the preceding case, each fifth hour. Patient made good recovery,

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without any complications whatever, and has remained perfectly cured of her former troubles.

In this case, although no harm resulted, instead of simply allowing the edges of the incision to fall together, I should have united the peritoneal edges by sutures.

In conclusion, an enumeration of some of the advantages of

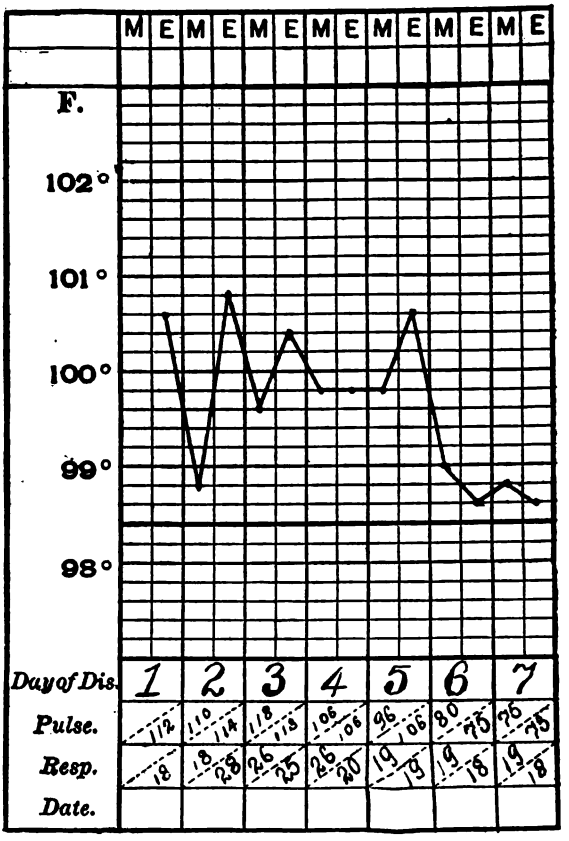


CHART 2.

the vaginal over the abdominal route in suitable cases may be helpful:

1. Freedom from ventral hernia and unsightly scar.
2. Comparative freedom from shock and vomiting.
3. Intestinal traumatism and adhesion are avoided.
4. Stitch-hole abscess, causing long and tedious convalescence, is avoided.
5. The great advantage of natural drainage when required.

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6. The greater willingness of patients to undergo such serious capital operations, as, to their minds, cutting through the abdominal wall to enter the peritoneal cavity is a vastly more serious matter than the accomplishment of the same purpose by the vaginal route, although the *fact* is, the results are about the same, the latter merely requiring the greater aseptic precaution and operative technique.

To offset these are the following advantages of the *abdominal* over the vaginal route :

1. Greater accessibility to pelvis, affording free exploration and inspection.

2. Less danger of traumatic injury to ureters.

3. Under improved technique of closing abdominal incision, ventral hernia is becoming rare.

4. *Permanent dressing* after closure, in clean cases, until stitches are removed, while by the vaginal route vaginal irrigation must be frequent and the greatest aseptic precautions constantly observed.

23½ MERCHANTS' ROW.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, February 17, 1898.

EDWARD P. DAVIS, M.D., *in the Chair.*

DR. JOHN B. SHOBER read DR. W. A. N. DORLAND'S paper entitled

REPEATED EXTRAUTERINE PREGNANCY.[1]

DR. B. C. HIRST read a paper upon

THE HISTORY OF PAIN AND THE MENSTRUAL HISTORY OF EXTRAUTERINE PREGNANCY,[2]

and also reported

TWO CESAREAN SECTIONS: ONE FOR A FLAT RACHITIC PELVIS COMPLICATED BY OBLIQUE DEFORMITY; THE OTHER FOR A DERMOID CYST IMPACTED IN THE PELVIS.

The first operation was not particularly interesting. The woman had a rachitic pelvis with a conjugate of seven and a

[1] See original article, p. 487. [2] See original article, p. 481.

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half centimetres, and a very considerable oblique distortion besides, due to a fracture of the head of the femur when she was 1 year old, which was not recognized and had never been treated. The child's head had a fronto-occipital diameter of thirty-six and a half centimetres. The indication for operation was, I think, absolute, on account of the combined flat and obliquely contracted pelvis. The latter is not by itself such a serious matter in labor, but as a complicating factor in an antero-posteriorly contracted pelvis it becomes very serious indeed.

The child was alive when I gave orders to have the patient prepared for operation. I heard the fetal heart sounds, saw and felt the fetal movements. In the forty-five minutes required to prepare the patient the child died. Its heart was not beating when it was extracted. The woman had been in labor four days, though the pains had not become excessively severe until eighteen hours before. The form of operation was a celiohysterectomy, which I always prefer in an insuperably obstructed pelvis. The patient made an uneventful recovery.

The second operation was, to my mind, much more interesting, on account of the indication: a dermoid cyst impacted in the pelvis behind the cervix and under the promontory of the sacrum.

This woman had been examined by a general surgeon some time before, who had advocated hysterectomy for what he believed to be a fibroid of the uterus—a common mistake, it would appear, for I have seen three cases of ovarian tumors impacted in the pelvis during pregnancy and labor, all diagnosticated as fibroids. My experience in labor obstructed by ovarian tumors comprises now six cases. In the first I punctured the cyst through the vaginal vault and extracted the child by version, using so much violence in pulling its head past the solid remnants of the tumor that its neck was fatally injured. The mother did well for three days. On the fourth there were symptoms of infection or of gangrene in the tumor. I prepared to operate on what happened to be the morning of my wedding day; was seized, however, with a panic lest I be late at my own wedding; begged the late Dr. Goodell to operate for me, which he promised to do, but he forgot all about it. Six days later Dr. Goodell sent me word that it was too late to operate, as the patient was dying. Hastening home, I did an ovariotomy, in the true sense of the term, without an anesthetic, on what appeared to be a moribund woman, incising the sac wall, evacuating a large quantity of horribly foul contents, and sewing the tumor wall to the walls of the abdomen, the whole procedure taking only a few minutes. To the surprise of every one the patient recovered. In the five other cases I have had an opportunity of observing, Cesarean section was required in three; the tumor was dislodged from the pelvis in two, but in one of the latter it was necessary to operate in the puerperium, as the cyst had become gangrenous in consequence of a twisted pedicle.

It seems clear to me from my own experience, and from

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what I read of such cases, that the treatment of ovarian cysts in pregnancy and labor may be summed up as follows: If discovered prior to the fifth month of pregnancy the tumor should be removed. If the patient is seen first at a later period, the removal of the tumor should not be undertaken until at or near term, or, better, after puerperal convalescence is completed. If the tumor is in front of or to one side of the womb it may easily be displaced and will not obstruct labor. During puerperal convalescence the patient should be closely watched, and on the first symptom of inflammation or degeneration in the tumor it must be removed. If the tumor is behind the womb, impacted in the pelvis under the promontory of the sacrum, an attempt may be made to dislodge it with the woman in the knee-chest posture, but the greatest caution is necessary not to rupture the walls. We should all remember the interesting and instructive case reported to the Section last winter by Dr. Norris of a dermoid cyst in a parturient woman ruptured by too violent taxis, with a fatal result in spite of an immediate Cesarean section and cystectomy. Failing to dislodge the tumor, there is, to my mind, but one course worth considering: this is a coincident Cesarean section and cystectomy. Puncture of the cyst through the vaginal vault I shall never resort to again. I should state that the case which makes the basis of this report has resulted favorably. Both mother and child are doing well. The former's convalescence, however, was retarded by a complication which I think must often be found in the conservative Cesarean section. I operated before labor, at a selected time. The tumor could easily be removed, so I left the womb behind. It was necessary, of course, to dilate the cervix, so as to provide a free vent for the lochial discharge. This I did thoroughly, packing in a large piece of gauze with the end trailing into the vagina, which was removed twenty-four hours later. The drainage was satisfactory for three days. By that time the cervical canal had become so contracted again that there was retention of lochia, which developed a foul odor. Three times in the course of the puerperium was I compelled to dilate the cervical canal and to wash out the womb. The tumor had a peculiarity which I have never happened to see before. There were two distinct loculi. In one there was about a pint of the dark fluid which is commonly seen in a multilocular cystoma. In the other there was a large amount of typical dermoid contents, sebaceous matter, and hair. The whole tumor was about the size of a large fetal head and completely filled the pelvic canal.

Dr. B. F. Baer.—This case which is reported by Dr. Dorland is the only one of repeated extrauterine pregnancy with which I have had any experience. The first pregnancy occurred in 1890. On September 20 she had sharp pain in the left ovarian region, followed soon after by fainting and collapse. Profound shock continued during the night, but she rallied, and on the next day she got out of bed, had another attack, and was again very ill. A physician was now called and pre-

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scribed, but did not make a diagnosis. A few days after she was up again and had another similar attack. Dr. B. Trautmann was then called and sent the patient to the Polyclinic Hospital.

From the history the case seemed clearly one of extrauterine gestation in which rupture had occurred, with repeated hemorrhage and shock as a result. After abdominal section I found a large quantity of old blood and an ectopic gestation sac which had ruptured along the upper border of the Fallopian tube, but the product was still *in situ*. The gestation sac, together with the left ovary, was removed. The right ovary and Fallopian tube appeared to be in a healthy condition and of course were not disturbed. A smooth recovery followed.

About fifteen months after the operation, in July, 1892, Mrs. L. presented herself at my clinic and stated that she believed she was again pregnant and feared that it was abnormal, because she had pain in the right iliac region similar to that on left side in the previous pregnancy. To my surprise, examination revealed an enlargement of the right Fallopian tube. The outline of the tube was easily discovered, and it appeared to be about the diameter of an English walnut, but longer. I at once expressed the opinion that she was probably correct in her fears, and ordered her to at once place herself under close observation and remain at rest in bed. I was ready to leave that same evening on my summer vacation, and therefore requested Dr. Dorland, who was my chief assistant at that time, to take charge of the patient and to operate within a few days. Strange to say, in view of her former experience, the patient did not take my advice regarding rest in bed, but went on an excursion the next day to Atlantic City, and returned with symptoms of hemorrhage. Operation revealed, as stated in the report, a right tubal pregnancy, and again saved her life.

I wish to indorse most earnestly what Dr. Hirst has said regarding the value of pain as a diagnostic sign of ectopic gestation. Very little dependence should be placed upon the menstrual history, for although there is usually a disturbance or irregularity of that function, it is often not observed or regarded by the patient as of consequence. The gestation, as a rule, proceeds to the point where such distension of the tube occurs that pain results. Sometimes even this is not regarded by the patient until a period of development has been reached where the pain becomes so severe and agonizing at times that shock supervenes even before rupture. The pain is always a premonitory sign of rupture of the tube or of tubal abortion. I wish especially to emphasize this fact. It is a sure sign of impending danger, and should at once impress the physician with the grave importance of immediate diagnosis. If the pain is attended with metrorrhagia, even if it be only slight, this should be taken as an additional sign of approaching disaster.

DR. C. P. NOBLE.—The question of repeated tubal pregnancy in the same patient is so rare that few of us have ever

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seen it. I have never met with it. Quite a number of my patients have had normal pregnancies later, and one has had two children after ectopic gestation. I have seen the statement that a patient who has tubal pregnancy never has a normal uterine pregnancy. My own experience shows that is erroneous. One or two points in pathology mentioned by Dr. Dorland deserve notice. A large number of tubal pregnancies were examined by Williams, of Johns Hopkins, who arrived at the same conclusion as Sutton—that the tubes had not been previously inflamed. In other words, I think we are at sea as to the actual cause of tubal pregnancy. From the standpoint of diagnosis of tubal pregnancy, my own experience has led me to believe that it is not always possible to make a diagnosis. I have been absolutely confident of the presence of tubal pregnancy and found a tumor with inflammatory complications; and, on the other hand, I have believed a tumor was present and found tubal pregnancy. In general terms I quite agree with Dr. Hirst as to his views as to diagnosis of tubal pregnancy. I think especially the pain and irregularity in menstruation, plus the presence of a tender tumor to one side or the other of the uterus, and the non-existence of uterine pregnancy as indicated by the size of the uterus, are the points upon which a diagnosis must be made. I have in almost all the cases I have seen noted a suppression of menstruation, perhaps only for a week, but still on careful inquiry almost invariably, if not invariably, one period has been skipped. Sometimes the period was very short. The last case I saw of this character was seen just as the woman died of hemorrhage. She had gone over her time only three or four days, and hemorrhage took place at that time. She died within less than a week of the proper time for her menstruation. In the matter of tubal abortions as against tubal ruptures, my own experience is in accord with that of Sutton—namely, we meet with more tubal abortions than tubal ruptures. I cannot remember the exact figures, but I think there are twice as many tubal abortions as tubal ruptures. As to the remaining portion of Dr. Hirst's paper—the labor obstructed by ovarian tumor—I am certainly in accord with him that we should not tap these tumors per vaginam. I think that is barbarous surgery which should not be followed. At the time this teaching came into vogue Cesarean section and ovariotomy had the gravest mortality, and probably, before the days of antiseptic surgery, it was safer to deliver that way. Certainly at this day the chances are in favor of Cesarean section as against puncture. It would only be by chance a woman would escape if the tumor were punctured. The puncture remains open, and by dragging out the baby through the pelvis and bruising the tumor every condition is present for the development of septic infection in the ovarian tumor; and then only early resort to ovariotomy will save the woman from death from peritonitis.

DR. JOHN C. DA COSTA.—I have not had a second case of extrauterine pregnancy in the same woman in any of my cases.

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I wish to indorse Dr. Hirst's ideas in regard to the symptoms of extrauterine pregnancy. Pain, on which he laid such stress, is really one of our most important symptoms; not ordinary pain, but pain of that agonizing character that the woman cannot endure it; she falls under it—pain unlike any other. I do not think cessation of menstruation is always associated with extrauterine pregnancy, but rather irregularity. As Dr. Hirst states, sometimes there is a little flow of blood, sometimes there is a continuous leakage; but I think pain of this peculiar agonizing character, together with the irregularity of menstruation and presence of a tumor, are pretty sure signs of extrauterine pregnancy, and yet with all this I do not feel nearly so certain of always positively diagnosticating an extrauterine pregnancy as Dr. Hirst apparently is.

Dr. G. Erety Shoemaker.—I have not seen a repeated extrauterine pregnancy in the same patient. I have, however, seen the normal pregnancy follow extrauterine. A case recently presented itself which has bearing upon the point of diagnosis in extrauterine pregnancy. She was brought to me by a physician who had previously brought a correctly diagnosed case of the kind. She had been married ten months; had seen no menses for two months, with a history of previous regularity. Severe left-sided pain with vomiting appeared suddenly three weeks after last period. Constant left-sided pain since, with two sharp exacerbations, one eight days ago, the other the day before admission. In last twenty-four hours her physician had given altogether one and one-half grains morphia hypodermatically. There was a bloody, muco-purulent discharge. Examination showed the right side of the pelvis free, the left occupied by a resistant mass extending behind the uterus as far as the median line. This mass, instead of being extrauterine pregnancy, as the history suggested, proved to be a partial torsion and locking of the uterus below the promontory of the sacrum—a very unusual condition, in my experience, in an impacted pregnant uterus. The uterus was reduced, but miscarriage occurred two days later, and normal recovery followed.

Dr. E. P. Davis.—I would like to most emphatically indorse the significance of pain as symptomatic of ectopic gestation. An experience is brought to mind in which there was absolutely no tumor to be found by vaginal examination, in which the discharge from the uterus was exceedingly trivial, in which the history of menstrual suppression was entirely unimportant, in which the only sign that impressed the physicians who saw the case was pain and shock. An abdominal section proved the existence of ectopic gestation and of the slow dissection of the tube by rupture, the dissection being upon the abdominal side, so that no tumor could be felt through the vagina. I am glad that Dr. Hirst has made prominent the character of the pain and the character of the shock in the absence of other symptoms. I should feel that I had not done my duty unless I urged section on a patient with such pain and shock. The

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section itself, in competent hands, would be trivial, otherwise there might be a fatal result.

As regards the other portion of Dr. Hirst's paper, my experience coincides with his—that the flat pelvis, obliquely contracted, is exceedingly dangerous. I have had occasion to perform Cesarean operation in such cases, and would never hesitate to do so. Labor in such pelves where Cesarean section is not done often results fatally. If the head is through the brim the patient is but half through the danger. In Cesarean operations in which difficulty arises from lack of drainage I have found it necessary in hysterectomy, if the patient was not advanced in labor, to pass a dilator through the cervix before amputating the uterus. It should always be done in either form of the Cesarean operation. A unique case in the literature is reported in which a patient was in labor and a pelvic cyst complicated the labor. Taxis was tried and failed. The abdomen was opened, when the purulent contents of the tumor welled out. The patient was in a condition of shock through sepsis, and, as several physicians were present (the staff of the Boston Lying-in Hospital), one gentleman evacuated the contents of the cyst, flushing the abdomen, while a second perforated the child's head and extracted it with forceps, thus avoiding contaminating the interior of the freshly emptied uterus with the contents of the suppurating cyst. The operators were fortunate in securing the recovery of the patient, though her condition was that of extreme shock.

DR. B. C. HIRST.—I must disclaim the pretension to an ability to diagnosticate every case of ectopic pregnancy. I fear that on this point I have been misunderstood. I have had precisely the experience Dr. Noble has had. I have made up my mind that a certain case was one of ectopic pregnancy and have found a pus tube and coincident abortion. I remember one case in which I was most confident that the patient had a tubal pregnancy, but I found on operation a dermoid cyst twisted on its pedicle, and a half-completed abortion from an intrauterine pregnancy. On the contrary, I have operated for what I thought was an intrapelvic tumor and have found a large extrauterine pregnancy. In the majority of instances, however, I feel confident of my ability to make a correct diagnosis before rupture of the sac.

DR. EDWARD P. DAVIS read a paper entitled

ECLAMPSIA, ANTEPARTUM AND POSTPARTUM.[1]

DR. B. C. HIRST.—I would like to indorse Dr. Davis' remarks in regard to the treatment of eclampsia as exemplified in his first case. I believe a great deal of harm is done by the idea prevalent in general practice that the main thing in the treatment of antepartum eclampsia is to get the woman delivered with the least possible delay. In the University Maternity I have had an unusual number of such cases. A tele-

[1] See original article, p. 476.

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phonic and ambulance service secures us a large number of desperate eclampsias. The attendant physician, fearing a fatal issue, has his patient transported to the hospital, where he knows she can secure better treatment than in the poor surroundings of her own home, and, I dare say, is influenced sometimes by the desire to escape the odium of a death and to transfer the responsibility to the hospital authorities.

In spite of the desperate character of many cases referred to us, we have lost but two women from eclampsia in the whole history of the University Maternity since its foundation nine years ago. We have saved all the rest by carrying out practically the same routine which Dr. Davis advocates. One of the women died because on one occasion we were induced to depart from our general practice. Her physician accompanied her to the hospital in the ambulance. She was eight months pregnant. My assistant took charge for me and carried out the principles of treatment that Dr. Davis has described—namely, induced sweating and purgation, administered subcutaneous salt injections, gave veratrum viride, etc.—with gratifying results, but all the while the accompanying physician kept repeating: "Why don't you get her delivered?" Influenced at length by this importunity, my assistant ceased his eliminative treatment, turned his attention to forcible dilatation of the cervix, and delivered the child quite quickly. The woman died within an hour afterward, whereas up to the time of the accouchement forcé her progress had been satisfactory. I believe in this case, if the routine practice of the hospital had been followed, she would have recovered. That is to say, if the poison in her blood had been eliminated by active treatment before the womb was emptied, the woman would unquestionably have had a better chance.

The second death was very interesting. I was called one morning to see a woman brought in the ambulance. She was seven and a half months pregnant and had had two convulsions. The resident physician had immediately begun the methods of treatment he knew I favored. Under this plan of management the woman had regained consciousness. Her features were less bloated. The pulse had very much improved. I directed that the treatment should be continued. As I turned to leave the room, almost before I reached the corridor, the patient died, though a moment before her pulse had been 80, her consciousness clear, and there had not been convulsion for an hour. The postmortem examination showed the cause of death to be embolism of the pulmonary artery, which was perfectly occluded, as were its two main branches.

Dr. G. M. Boyd.—I also wish to indorse Dr. Davis' remarks in regard to the treatment of eclampsia, in spite of the fact that in several cases I have carried out the method of emptying the uterus with success. I feel, though, it is wise to start up the emunctories before emptying the uterus. We do not as yet know the true cause of eclampsia. Certain cases, in spite of our best efforts, will terminate fatally, and in two cases with

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a fatal termination at the Lying-in Charity the convulsions did not develop until after delivery. It seems to me that in these two cases there was distinct renal disease, and the eclampsia was a true uremia, not due to the development of some toxic element in the blood.

DR. D. LONGAKER.—I feel like indorsing Dr. Davis' statements in the main. I think the various processes of elimination should be set in motion. I saw very early in my practice a case which demonstrated the wisdom of this plan of treatment. In this case the labor was allowed to go on spontaneously, and after the convulsions had been arrested, some three or four days later, she was delivered of a still-born child. I have not had any experience with the tincture of veratrum viride, and I should like to ask Dr. Davis to tell us whether he uses it in its pure form. I feel like using chloral and bromide very freely in these cases rather than relying on chloroform. I think many of these cases bear venesection, especially if they are seen early, very well, and I believe in free bleeding in most of them. Start the emunctories going, get the patient to sweat, with thorough purgation with elaterium, chloral, and bromide per rectum, and venesection. This has been the plan of treatment which I have found very satisfactory. I have, too, in some three or four cases used morphine in good-sized doses. Most of the cases I have seen have made recoveries. I only remember a single one that died, and I have seen probably eight such cases ante- and postpartum.

DR. J. F. PRENDERGAST.—In regard to the injections of the normal saline solutions, will Dr. Davis kindly inform us as to the points of selection and the instrument which he uses? I think the plan is an excellent one. If our text books and old plans could be cast aside, the medical profession, and particularly the poor patients, would be immensely benefited. I recently lost a case of this character. I emptied the uterus at once. The patient lived about twenty-four hours and died, practically, of edema of the lung. She did not become unconscious until immediately before her death.

DR. JOHN B. SHOBER.—Veratrum viride is a drug which practically bleeds one into his own tissues by dilatation of the capillaries, and therefore in connection with the use of this drug I think we should bear in mind the inadvisability of venesection. Not very long ago I had an experience in my practice at Bar Harbor in the case of a woman who became eclamptic at the seventh month. The physician in charge had given her morphia and had instituted treatment by large enemas of saline solution. He had used also the hot pack and large doses of cathartic drugs with some success. The urine was very scanty, high-colored, and contained two-thirds albumin. The pulse was rapid, but fairly good. I advised the use of the fluid extract of veratrum viride, and recommended doses of twenty minims every four hours. This was kept up for two days and gradually diminished. The pulse became slower and fuller and its strength was not impaired. The general condition of the

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patient improved. At the same time active catharsis was kept up by the use of salines and calomel. I think it would have been a mistake to have bled her. Under appropriate subsequent treatment she recovered, and at full term had a living child. This case was reported to the Section about a year ago.

DR. E. P. DAVIS.—As regards Dr. Hirst's remarks upon my paper, the importance of the pulmonary complications of eclampsia can scarcely be overlooked. His own case of pulmonary clot is a striking instance of what not rarely happens, but may not be diagnosticated. In a recent experience an alcoholic patient, brought to us comatose and in eclampsia, was literally made to eliminate, became conscious, but then died of pulmonary gangrene. There is something in eclampsia which predisposes to pulmonary complications. We know by experiments on animals that the ferment in eclampsia produces thrombosis and embolism, processes which cause pulmonary complications.

Dr. Prendergast has spoken of pulmonary edema. It is always a fear that the patient may pass through eclampsia only to die of pulmonary edema. If there is a tendency to pulmonary congestion, strychnia and atropia should be given freely.

As to the method of treatment described: The patient is placed in a hot pack, and the blankets are so arranged that their edges meet at the lateral portion of the body. A fountain syringe or two fountain syringes are taken, and the two syringes are attached to perforated needles of considerable size; the points of puncture are on the lateral aspects of the thighs, the connective tissue of the pelvis, and the connective tissue just below the lower border of the axillary space; in extreme cases rapid absorption may be secured by introducing fluid into the supra- and infraclavicular spaces. If two nurses are assigned to the patient, fluid can be introduced in sufficient quantity, a pint of fluid readily in an hour. I do not recall the amount of fluid introduced into this patient, four pints and more, and treatment was continued forty-eight hours with practically little intermission. The abscess which developed was a trivial affair and is the first one I have seen after this treatment. Irrigation of the bowel copiously is important. The patient can be placed on a Kelly pad and water allowed to run in and out of the bowels.

As to veratrum viride, reliable preparations are not readily obtained. I am in the habit of using Squibb's tincture. Pharmacists say that it is a reliable product. The action in this case is not to be explained altogether by pharmacology. It is not only a bleeder into the system, but has a relaxing effect upon the woman in labor. It seems that the os softens under veratrum much as it does under chloral. As to dosage, I have not given it by the mouth, nor should I care to do so, because its action would be too slow and too uncertain for the purposes of eclampsia. I should have no hesitation in using ten minims every hour until three doses had been given, or thirty minims hypodermatically, of Squibb's. I should suppose forty to sixty beats of pulse fall would ensue. That is the experience of those with whom I have consulted.

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TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, April 16, 1897.

The President, GEORGE BYRD HARRISON, M.D., *in the Chair.*

DR. I. S. STONE presented a

MURPHY BUTTON]

and reported the following case:

Mrs. S. had undergone salpingo-oöphorectomy five years before. During the operation the surgeon had through accident wounded the large bowel at junction of sigmoid and rectum. The condition of the patient, and probably the absence of a button or other device for quick closure of the bowel, necessitated the formation of an artificial anus. She rallied from this operation, and, as above stated, the disability continued for five years, all fecal matter being passed through the abdominal opening. The patient came under the care of Dr. Stone at the Columbia Hospital and was operated upon March 20, 1897. The old sinus was dissected out, all adhesions separated, the two ends of bowel resected, the button placed, and the mesentery carefully sutured. The patient made an excellent recovery, and the button passed on the fifteenth day.

DR. J. THOMAS KELLEY, JR., said he recognized the case in which Dr. Stone used the Murphy button. He said Dr. Stone deserved credit for obtaining success in the case.

DR. I. S. STONE presented a specimen of

LEFT TUBO-OVARIAN ABSCESS, UTERUS, AND OMENTUM.

DR. J. WESLEY BOVÉE presented a specimen that he said was very similar to the one just presented by Dr. Stone. It was in a case that came under his supervision in one of the hospitals, and its history was as follows: Middle-aged woman with a tumor occupying pelvis and lower abdomen to level of umbilicus. She had been operated on six years before and was told the tumor could not be removed. Her menses had become painful after the first laparatomy and had continued to last October. Since that time had missed every period. Had been an invalid since first operation and desired removal of tumor. This I endeavored to do through the abdomen. A dense scar was present along the median line below the umbilicus, and to the left of this I made my incision and came

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upon intestine intimately adherent to abdominal wall, both in the line of my incision and under the scar mentioned, which required twenty minutes to separate. The pelvic cavity was filled with a large uterus (fibroid) which was covered over almost entirely by intestine and bladder. It was with great difficulty that the uterus was located. These adhesions were liberated by cutting through the uterus and getting under the intestinal loops adherent to it. When the intestine was lifted up a sac about three inches in diameter, containing clear fluid, was revealed, and proved to be what was representing the right ovary. This and quite a large pus tube on the same side were removed without the application of a ligature and without much bleeding. Then the bladder adhesions to the uterus high up were separated and the uterus removed *in toto* with but one ligature, that of the left uterine artery. The left appendage had been removed, and the stump of the right Fallopian tube, about one inch in length, was easily distinguished. The reason for not employing more ligatures was that no large bleeding vessels were encountered. There was, however, a very considerable oozing from the pelvic walls that had been attached to the uterine growths. The cavity was cleansed and drained by iodoform gauze lightly placed in it and drawn down slightly into the vagina. The uterus measured 6x4x4 inches. A quite large piece of the colon, involving more than half its circumference, was torn away with the mass and closed by double rows of interrupted mattress stitches after the following manner: The torn edges of the gut were trimmed in such a way as to resemble the notch an axeman makes in a log in cutting it in two, which extended through the gut to but not including the mesenteric attachment. To carry out the analogy, imagine the woodcutter bringing together the opposite cut edges of the bark and sewing them, and you have an idea of how this gut was repaired. The advantage was that the mesenteric attachment was not interfered with, the operation was done easily and rapidly, and the calibre of the tube at the place of injury was increased. The operation was the longest I have done, lasting two hours and twenty minutes. I had intended to cut away the scar tissue of the former operation in closing the abdominal wall, but was glad to close rapidly with but a few silkworm-gut sutures that included the scar tissue. This began sloughing a few days later and had to be treated as an open wound.

I would like to say that these secondary operations are very tedious and dangerous. A good deal of temerity is necessary, especially if the condition of the patient is not good and there appears to be a considerable amount of adhesions formed after the former operation. Dr. Stone deserves our commendation for the tenacity and courage as well as skill he has demonstrated in this case presented by him to-night.

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DR. WILLIAM M. SPRIGG read a paper entitled

PUERPERAL INFECTION AND ITS PREVENTION.[1]

DR. SAMUEL S. ADAMS said he was somewhat surprised at the high rate of mortality—sixty per cent—from septicemia. Statistics from health offices were not the most reliable. The sources of infection were numerous. The statement that a country practitioner had had one thousand cases of labor without having lost one was hardly credible. As to the duties of the obstetrical nurse, those who were instructed in the best hospitals were taught that they should not make vaginal examinations, yet they would do it. This should be forbidden. The doctors at this day *should* be aseptic, but it was true they were not. It was not always advisable to repair all lacerations at once, though of course those of the perineum should be. As to irrigations, the pendulum had swung in the other direction, and they should not be used unless specially required, though they may be necessary in hospitals. Protection of the external genitalia, as practised not long since, is not now generally used. As to ablutions, the woman was made much more comfortable by their use. His conclusion was that there was much of "fuss and feathers" in obstetrical work. Ordinary sound-sense cleanliness was all that was necessary on the part of a cleanly obstetrician. He agreed with Dr. Sprigg that examinations were too frequently made and were liable to do harm.

DR. WILLIAM P. CARR said he was not surprised at the large mortality referred to by Dr. Sprigg, since more than one-third of all the cases were delivered by midwives and one-half of the balance by men who knew or cared nothing about antiseptics. It was surprising how many did escape. Many of the so-called nurses were worse than useless. He believed that to the use of bichloride of mercury was due the low mortality. Washing the hands and douching with bichloride would go a long way to prevent infection. He used a douche of bichloride of mercury 1 : 2000 before delivery and twice daily afterward in all his cases, and freedom from infection was due to that. Carbolic acid was not so reliable as the bichloride of mercury, which was more persistent in its effects. It was impossible to make the hands wholly aseptic. He scrubbed his hands with soap and water, which he considered sufficient.

DR. JOHN T. WINTER said that perhaps he had been derelict in not using these solutions. He always kept himself clean, and in the last fifteen years had had but one case of sepsis, and that was produced by a meddlesome nurse. He believed in cleanliness, but he did not use uterine or vaginal douches unless there was odor to the discharges. He had not lost a case in his own practice in twenty years.

DR. GEORGE M. KOBER (a visitor) said the ground had been so well gone over that there was little left to say. The fact that the per cent of cases of puerperal infection was less in hospitals, the death rate being reduced to one-quarter of one per

[1] See original article, p. 491.

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cent, while the contrary might be expected, was due to aseptic methods. But aseptic methods alone were not sufficient, for hospitals employing them have infection. Douches should also be used in order to get the best results. The vagina is already infected. Of vaginas examined *thirteen of twenty-nine* were found to contain infecting germs. We should not depend on asepsis alone; these germs must be destroyed by bichloride of mercury injections 1 : 2000. Bichloride is the superior germicide. Puerperal infection would be more common but for Nature's methods—increased secretion, amniotic fluid, and blood escaping through the vagina forming a natural douche.

DR. F. R. HAGNER (a visitor) said: At the Johns Hopkins Hospital experiments on animals had been made to show that if a wound previously infected is flushed with bichloride solution 1 : 1000, and then some alkaline fluid, such as mild solution of ammonia hydrate, be poured over the wound, cultures can be obtained. As for example, a mouse's tail is shaved and abrasion made and inoculated with anthrax. If the wound is then washed with solution of bichloride 1 : 1000, followed by the solution of ammonia to neutralize the bichloride, cultures will then show anthrax in pure culture; and from this the deduction is made that as long as the bichloride remains as such it is effective as a germ-destroying agent, but if there is enough serum or alkaline fluid present to neutralize it its property is vastly diminished.

DR. THOMAS C. SMITH said: A member of this Society, in a discussion, had said that a physician who failed to use antiseptics and the case turned out badly should be prosecuted for malpractice. Dr. M. G. Elzy at the same time said that antiseptics were harmful. Joseph Price had said that he used bichloride douches and did not have ophthalmia neonatorum. Some one also said that bichloride was the cause of it. Dr. Smith said he used antiseptic douches when indicated.

DR. D. K. SHUTE (a visitor) said that the fact of the occurrence of ophthalmia neonatorum was a great reason for using antiseptics. He thought a mother would prefer her own death to blindness on the part of her child. As many as *twenty-three* per cent of cases of blindness were due to ophthalmia neonatorum. Any one who made the statement that antiseptic douches caused ophthalmia neonatorum did not know what he was talking about.

DR. J. W. BOVÉE said the subject was a grave one. In the worst cases of puerperal infection there was no odor. A condition of sapremia existed. He did not think filing the nails every day was a good plan. He recommended more scrubbing. He did not agree that because you could not remove all germs therefore no good was accomplished. He had had no case of puerperal infection in his own private practice, hence he might not be as careful as he should. He scrubbed his hands well and washed them in bichloride solution. As in laceration of the cervix there were fresh surfaces exposed, it was best to close them. He did make frequent examinations in his labor

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cases, and in primiparæ he kept his finger in the cervix, and thought he prevented laceration of the cervix by so doing.

DR. WILLIAM M. SPRIGG said he was obliged for the thorough manner in which the paper had been discussed. He agreed in the use of bichloride, but thought Dr. Carr was in error in not cleaning his finger-nails. He thought a douche should be used before labor, and if the vulva was protected by a suitable pad afterward it would not be so necessary to use the douche. He would not practise obstetrics if he could not use antiseptics. He thought antiseptic midwifery could not be so thoroughly carried out in private as in a hospital.

DR. WILLIAM P. CARR said he would like to explain that half-way cleaning the finger-nails did harm by loosening up germs. It was necessary to be thoroughly done.

DR. J. W. BOVÉE said he thought we should be more successful in the private practice of obstetrics than in hospital.

DR. F. R. HAGNER (a visitor) said that odor had nothing to do with infection, because the most virulent pyogenic organisms, such as the staphylococcus aureus, albus, or the streptococcus, cause no odor whatsoever, while the pyocyanus, which, while a pyogenic organism, is not virulent, causes an offensive odor; and the colon and bacillus subtilis, which are not pyogenic organisms at all, are usually the cause of odor in infected wounds.

Stated Meeting, Friday, May 7, 1897.

The President, GEORGE BYRD HARRISON, M.D., *in the Chair.*

DR. H. L. E. JOHNSON presented some

STONY CONCRETIONS FROM THE URETHRA OF A WOMAN.

DR. JOSEPH TABER JOHNSON presented a uterus removed by

VAGINAL HYSTERECTOMY

on account of pain and hemorrhagic endometritis.

DR. HENRY D. FRY read a paper entitled

THE TREATMENT OF ASPHYXIA NEONATORUM BY THE HYPODERMATIC INJECTION OF STRYCHNIA.[1]

DR. J. THOMAS KELLEY, JR., said that anything suggested for the relief of asphyxia neonatorum should be listened to, and a remedy that was reported to relieve fourteen out of fifteen cases should not be passed over lightly. The remedies that had been recommended were numerous. He had used the alternate application of hot and cold water and artificial respiration. In the majority of cases the condition was one of shock, as described by the essayist, and when the reflexes were

[1] See original article, p. 470.

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lost the alternate application of hot and cold water did no good. In such cases whiskey and strychnia were indicated, but he had seen strychnia given without result. As to the one-hundredth of a grain of strychnia causing convulsions, he said they might have been due to other causes. It was necessary to be exceedingly careful in the administration of hypodermatic injections to new-born infants. It had been recommended to put these babies in hot water and to use rectal injections of hot water.

DR. H. L. E. JOHNSON said the subject was a very interesting one. He thought that if postmortem examinations were made on asphyxiated infants it would be found that hemorrhage had taken place in the brain. Delivery through contracted pelves was probably a cause of asphyxia of the newly-born. He had seen a case of fracture of the base of the skull, as evidenced by bleeding from the ear, in a new-born infant, the child surviving. There was no relation between shock and asphyxia neonatorum.

DR. GEORGE BYRD HARRISON asked Dr. Johnson if he had ever introduced a catheter into the larynx for the relief of asphyxia neonatorum.

DR. JOHNSON replied that he had not, but that Dr. Cuthbert had done so successfully.

DR. HARRISON said he saw in Polk's clinic in New York a child brought in almost asphyxiated, the breathing being stridulous. A finger was introduced into the pharynx for the purpose of removing anything that might be there, but the child died.

DR. SAMUEL S. ADAMS said this was one of the most interesting questions that had been before the Society. He said it must be remembered that those who had had little experience were very liable to give exaggerated accounts of what they saw. It would require more exact and clearer observation than had been made by Dr. Fry's assistants. It was necessary to determine whether the condition was that of atelectasis, also to ascertain the character of the heart's action, and then resort to such means as were indicated. If the heart beats were not discoverable hypodermatic injections would do no good, as the injected material would not be absorbed. If a cardiac stimulant was demanded, would not nitroglycerin be preferable to strychnia, as it would relieve engorgement? He did not believe that strychnia was better than whiskey. He thought it dangerous to give hypodermatic injections of strychnia to young infants. It was better to endeavor to stimulate the reflexes by shocks to the skin, and to practise artificial respiration in a gentle manner.

DR. J. W. BOVÉE said he saw no objection to giving hypodermatic injections to infants. It was the most scientific method of medication. No one would think of giving one if the circulation was not going on. There was a difference of opinion as to the pathology of shock. He said he thought he would try antispasmodics to overcome it. He did not know

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that one-hundredth of a grain of strychnia was too much, though he thought the case reported was one of strychnia poisoning.

DR. THOMAS C. SMITH said we should welcome anything new in the treatment of asphyxia neonatorum. He thought Dr. Adams had not fully comprehended what Dr. Fry had said. It was when the child manifested a return of life that the injection was to be given. He said he had succeeded in exciting the reflexes by tickling the soles of the feet of the child.

DR. JOSEPH TABER JOHNSON said he would emphasize the importance of doing something toward resuscitating these babies. He related an instance in which the child had been put aside as dead, but it afterward revived. We should not give up efforts at restoration until any and all methods had been tried.

DR. E. L. TOMPKINS said he had resuscitated a child by blowing into its mouth.

DR. S. S. ADAMS said his position was not that of criticising Dr. Fry, but his belief was that the infants would have recovered without the treatment.

DR. GEORGE N. ACKER said he once examined a child ten minutes after birth, when it was placed aside, apparently being dead; but it finally breathed. He agreed with Dr. Adams that many of these children would revive without medication.

DR. F. S. NASH said strychnia met all the indications in such cases better than any other remedy. It stimulated both the respiratory and circulatory centres. One-two-hundredth of a grain of strychnia was not too large a dose.

DR. HENRY D. FRY said that Dr. Nash had expressed his view as to the effect of strychnia. The instance cited, in which the child died, was a case in which the placenta was previa. There was no contraction of the pelvis and the child was expelled quickly. As the child did not die until the following day and as there was no evidence of the physiological effect of the drug, he did not believe the strychnia was the cause of its death. There was no parallel in the case referred to by Dr. Harrison to his cases. Blowing into the respiratory tract was no longer practised. The only use for the catheter was as a tube through which to draw by suction fluid from the air passages. It was difficult to decide when the child was dead; the circulation went on feebly and imperceptibly. Certainly strychnia could do no harm if it was dead. He had thought of nitroglycerin, but it did not meet the indications. There was no peripheral engorgement, but, on the contrary, the child was pale. He said it would not do to leave the child alone and say it would get well or die. Strychnia was a heart, respiratory, and muscular stimulant, and there was nothing else so reliable. He had been using it for over a year in these cases, and he saw at once the influence of the drug. The results from whiskey were not so good.

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TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY.

Meeting of December 9, 1897.

The President, E. S. McKEE, M.D., *in the Chair.*

DR. WM. D. PORTER read a paper on the

PROPHYLAXIS OF PUERPERAL SEPSIS.[1]

DR. CHAUNCEY D. PALMER.—Dr. Porter made a good point when he referred to the damage done by contusion and bruising of the tissues, lowering their vitality and rendering them more or less susceptible to septic poisons. There can be no doubt that a bruised tissue is more susceptible to septic poison than a tissue which is not bruised. Let me refer particularly to some of my experiences in the hospital. Antiseptic precautions are carried out in every case in the Cincinnati Hospital, and I think we ought to be proud of the record that has been made there. It is no exaggeration to say that the mortality in the lying-in wards of the Cincinnati Hospital some twenty-five years ago was about ten per cent; but ten years since that mortality was reduced to two and a half per cent. Now it is almost nothing. In the last three years there has not been a death in this department of the Cincinnati Hospital. That is saying a good deal, bearing in mind that the hospital receives all kinds of cases at all times and under all circumstances; they are brought there having been delivered in patrol wagons or in the room down-stairs before placed in the ward. The last fatal case, more than three years ago, died as the result of a septic condition induced before the patient was received. This reduction of the mortality is only what is going on in other hospitals, as the Sloane Maternity, New York, and the Preston Retreat of Philadelphia. At the Preston Retreat I think every patient is compelled to come some days or weeks prior to delivery, when certain precautions are taken. That is not true of our City Hospital, and cannot be, for the City Hospital is for the city poor, patients coming when they may. In the Maternité in Paris, France, the mortality has been one death in 1,150 cases. In the Cincinnati Hospital, when a woman is received not to exceed two months prior to her delivery, she is put in the waiting ward and all aseptic conditions are followed out. She has one bath a day in hot weather and two baths a week in cold weather. The vagina is irrigated in all instances, just as soon as labor commences, with the bichloride solution, about 1 : 4000 strong, and the interne as well as the nurse exercises all anti-

[1] See original article, p. 496.

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septic precautions. The vagina is again irrigated, as soon as the placenta is delivered, with a large quantity of hot bichloride solution of the same strength. These postpartum injections are very hot, to stimulate uterine contractions and abate the postpartum flow. It is a rare thing for a woman in that ward to have a temperature to exceed 100° F. at any time. Of course if the perineum is torn it is stitched immediately, as it should be in all cases. I have adopted the plan in recent years to stitch the cervix uteri if torn much and if there is hemorrhage from it; sometimes there is considerable hemorrhage from the torn circular artery of the cervix uteri.

DR. BYRON STANTON.—One reason why there has been a decrease in puerperal sepsis in the last few years is that instruments, when required, are applied earlier than they were formerly and are used more skilfully; the cases are not allowed to drag along until there is injury to the vagina by pressure.

In regard to the prevention of puerperal sepsis, the important thing is cleanliness, and the more simple the means with which that can be brought about the better. Soap and water is about as good as anything. I am opposed to bichloride solution; not but there are cases in which it may do good, as where there is some disease of the vagina, some morbid material that can be washed out, but in a woman with a normal vagina the less interference the better. Many cases of nephritis and injury have been caused by the everlasting resort to bichloride injections. I tried them for some time in every case, and the cases with highest fever, the cases that gave me the most anxiety, were those in which I used these injections before and after delivery, and since I have quit the use of them I have had better results than before. I believe it is well to keep these cases clean, but that can be done with soap and water better than with bichloride of mercury. Even in cases of the use of instruments, I believe, where the vagina is kept clean, we can do just as well or better without the bichloride. No examinations should be made unless the finger is clean. We should wash the hands before an examination as well as after. I think it is the duty of the physician to make an early examination, to make it as thorough as possible, in order to determine the presentation and position, and after that to make very few examinations—the fewer the better. The progress the case is making may be judged of by the exclamations of the woman as well as by the vaginal examination. I am a believer in asepsis, but I am not a believer in the routine use of bichloride of mercury.

DR. GILLESPIE.—I would like to ask Dr. Stanton how he would be sure there was not some septic condition already existing in the vagina unless he inspected it. We frequently find, especially in multiparæ, there is a vaginal discharge that is purulent. We are not always sure whether the woman has gonorrhea. Where the vagina is open there is an opportunity for the ingress of bacteria, and the woman often indulges in intercourse, and even if the husband has not gonorrhea you

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cannot be sure that there are not some germs on his organ of generation. I cannot understand how a vaginal irrigation could produce septic conditions or temperature.

DR. STANTON.—I do not see septic conditions, but we can, I believe, do as well without these injections. I believe many cases of nephritis are due to bichloride of mercury. As to how we can determine whether the vagina is free from germs or not, that, of course, we cannot determine absolutely, except by a bacteriological examination, which is impracticable.

DR. ORR.—In thirty years of practice I have never lost a mother in confinement. I have attended cases in every kind of house, from the filthiest up to the best. I attended them before we knew anything about such a thing as septic poison, when they were surrounded by rags and rolling upon a bed made of rags, and yet I have never lost a mother.

It has been my practice, since the establishment of antiseptics in midwifery, to make use of them. It has been my misfortune to have had more septic trouble since that period than I had before. I do not, however, lay it to the antiseptics; I lay it to the improper treatment by parties surrounding the case. I had one case of septicemia following confinement where I made use of all the methods of cleanliness in my power; yet I had one of the worst cases I ever had anything to do with, and I traced it to the manipulation of the genitals by the mother. I state this as a practical point to which the doctors often do not look. We wash the genitals and wash our own hands, and instruct the nurses to have everything clean and have antiseptic dressings to surround the genitals, yet this woman insisted upon handling the genitals in trying to help herself. Notwithstanding I tried to dissuade this young mother, she would get her hands down under the covers and try to stretch the vulva with the hands. I could not trace the infection to anything else. There is no doubt in my mind but the antiseptic treatment is the proper one; whether it is the destruction of these germs or the filth which comes from some other source, all statistics go to prove a lower mortality and the advantages of the antiseptic treatment. Some insist only upon washing out the vagina prior to delivery. That of itself, of course, is good, but I think there should be more washing in a case than that. I think the whole body should have a thorough hot bath before. But there is a defective idea, it seems to me, practically, and that is to rely simply upon an injection, without going into detail and having perfect cleanliness of the entire body and everything about the body. My experience teaches me now that the hands of the mother should be made perfectly clean, or the mother should be made to keep her hands away from the genitals unless they are thoroughly disinfected. I now either have hands off or hands clean, one of the two. As to the injection beforehand, we frequently do not get to the case in time to prepare the mother. I had a case not more than three weeks ago to which I was called, and although I had given instructions to the nurse to give the

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injection and bath, it was not done. I was called and got in the house just in time. I had an opportunity to wash my hands only when the mother called, "Hurry up, doctor," and I got to the bedside just as the head was expelled. Based upon my experience, it is of the utmost importance to make use of the antiseptic treatment in its fullest details prior to labor and after delivery. Men differ as to the irrigation. Some say, do not touch; others use boiled water; others, antiseptics. My plan is always to make use of the antiseptics and irrigate for ten days following the delivery. For ten days I make use of vaginal irrigations three or four times, sometimes six or eight times, in the twenty-four hours. I have never had any nephritis from that cause in my cases, and I do not feel satisfied if I do not irrigate and keep the parts just as clean as possible in all cases.

DR. CHAUNCEY D. PALMER.—Antisepsis will not take the place of asepsis. Have the patient clean generally and locally before we make use of any antiseptic. It is utter folly to use an antiseptic solution on a dirty patient.

DR. STANTON.—Why are they needed on a clean patient?

DR. PALMER.—Because germs will stick to the parts, notwithstanding all precautions. With the ordinary precautions of general and local bathing the germs will stick there. To exercise asepsis it is necessary not only to have the general bath, but also a local vaginal bath. Scour the vagina with green soap as preparatory to any operation. Then the antiseptic is very well. Now, as to the bichloride doing harm, I have seen it used and had supervision of cases in which it was used, I suppose in some thousands of cases. I am in the habit, in private practice and in consultation and hospital cases, to have it used, and I believe it is used by all my colleagues in the hospital. I think for some ten years or more in the Cincinnati Hospital it has been used. I have never seen a particle of ill effect under any circumstances from this antiseptic. I have never seen any dysentery or colic or nephritic trouble that could be traced to it.

DR. T. A REAMY.—I would like to ask if the doctor does not think the result has been due rather to good fortune than to the treatment used. In the first place, bichloride of mercury is known to be a rather poor germicide as compared with carbolic acid. Lister himself said so, and several German experimenters have shown the same thing. If bichloride of mercury is used in a strength sufficient to destroy the pathological germs, staphylococci and streptococci, it is of sufficient strength to produce irritation of the vagina, and a degree of irritation that will set up the very first process of the current of absorption going inward instead of outward. The fortunate thing in these cases is that in a woman delivered for the first time, and therefore suffering some traumatism, the leucocytes are on hand in such numbers and so quickly act, and the processes of repair begin so promptly, that the introduction of pathogenic germs in such quantities as to do harm is rendered improbable. All the inves-

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tigations that have been made show that the germs present in the vagina of a woman in health when she is taken in labor, if none have been introduced from without by somebody or some syringe, are protective rather than pathological; they are germs that will do good rather than harm. The introduction of antiseptics into the woman's vagina just before she is taken in labor, simply because she is going into labor and you think she may be torn, is meddlesome midwifery and bad practice. The tear has not occurred when these injections are used. If you have infection, then treat the case as you would under other circumstances, but do not interfere with a natural process. It is not at all likely that the germs are an evolution of our century. I suppose the vegetable kingdom filled the world before the animal kingdom, and there were as many of these micro-organisms when Noah came out of the ark as there are now. It is a great wonder that the world has increased in population, since every child-bearing woman not diseased was in earlier times deprived of vaginal injections. Why should we inject the vagina of a woman in health simply for fear of something? It is the accoucheur's hands that should be cleansed. We are not now speaking of treating septicemia after it has started, nor about treating sapremia. I did not hear the paper and am simply speaking of suggestions that have arisen from discussions I have heard. If I had to use anything at all I would very much rather use an injection of some form of tar preparations—creolin or something of that character. Green soap is an admirable thing to use, as the doctor has said; but if you scrub the vagina with green soap for half an hour, as recommended, it will be in just the condition of irritation to absorb. I was going to ask my friend Dr. Palmer, not in criticism, but simply because I know he has a method about it: Is the doctor in the habit, if there is any laceration, of stitching it up then and there?

Dr. Palmer.—I stated that if the laceration is so deep there is hemorrhage, or if it is as deep as sometimes produces hemorrhage. An ordinary tear I would not stitch at all.

Dr. Reamy.—Without any doubt the line of advance in the future will be by the prevention of traumatism. Some women have traumatism because the forceps is applied too soon, but I indorse every word Dr. Stanton has said in reference to the timely use of the forceps. The woman may have fewer germ fields then to contend with. The mere delay itself is an element of danger. Still, there are instances where the forceps is applied too early, and then too much force applied, so that the head produces tearing beyond what otherwise would occur. I believe in the skilful and proper use of the forceps, and I have been in the habit of using an antiseptic after those cases. Whenever I would introduce the hand for the purpose of turning, or make a high application of the forceps, it has been my habit to wash out the uterus. I am not sure whether that is always justified. I have done it because I thought possibly pathological germs may have entered the vagina. I

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recommended it in my lectures, yet I am not now sure that it is necessary if the forceps and the obstetrician's hands are perfectly healthy and the woman is in a healthy condition. I doubt if even in such cases it is justifiable as a routine practice. No normal fluid or secretion is unhealthy or necessarily a germ-breeder.

DR. CHARLES L. BONIFIELD.—I want to compliment Dr. Porter upon his paper. The details given for securing asepsis in labor are good. There is only one to which I would take exception —that is, delivering the patient with her hips at the edge of the bed on a Kelly pad. This way may be very satisfactory to the obstetrician, but must be somewhat objectionable to the modest and timid patient, who would wish to avoid the exposure and who would fear operative procedures when placed in such a position. This position, I should think, would also interfere with voluntary expulsive efforts on the part of the patient, as there is no way in which she can brace her feet for the effort. I believe that by the liberal use of sterilized towels one can come as near attaining asepsis as by the use of the pad.

DR. GILES S. MITCHELL.—I was very much astonished in reference to the gentleman's remarks concerning the feeble antiseptic properties of bichloride of mercury. I do not say that the authors quoted do not bear out the statement of the gentleman, but I am sure the majority of bacteriologists and chemists regard bichloride of mercury as the most powerful germicide we possess. Of course the good results in midwifery date from the period of antisepsis, which commenced before asepsis. Asepsis, of course, is more important than antisepsis. Absolute cleanliness is everything in every procedure, whether it is physiological or surgical. Now, I remember the time, and it has not been so long ago, when we had epidemics of puerperal fever in this city and every man in practice, almost, encountered cases. That was when we used probably feeble solutions of carbolic acid. For a long time it was routine practice with me to employ vaginal injections just prior to labor and for at least a week or ten days following delivery. For five years I have abandoned that practice. I now use vaginal irrigation only in cases, after delivery, where I am sure there has been considerable laceration or where I know the patient is in a condition to be infected or has disease germs in the vagina before delivery. In such cases I would, of course, use the bichloride solution for a number of days before the inception of labor. I believe in hospital practice it is judicious in every case, as was outlined by our distinguished friend on the left, not to sterilize the vagina so as to make a trauma, but I believe in all hospital cases the vaginal douche should be employed. In private practice, where we are pretty sure the patient is clean and respectable and we believe the secretions are normal, I do not think we should meddle at all. I am quite sure the normal secretions from the uterus and vagina are not infective. The normal lochia are perfectly healthy for at least three days after labor, at least so it is said by competent men who have made careful

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analyses. If you were to rub the vagina with soap or anything else until you denuded the mucous membrane, of course you would have a field for infection. It is only where there is a real indication, when you know from the unhealthy discharges that the woman will have trouble, that we are justified in these precautions for the prevention not only of puerperal fever, but also for the prevention of the secretion getting into the child's eyes and producing ophthalmia neonatorum. There are a good many reasons for sterilizing the vagina, but I believe we can only do harm if we make it routine practice to employ antiseptics or keep them up after delivery. I never employ them after delivery unless I have had a laceration or some ugly discharge or an odor and I believe the patient is about to become infected. Of course I make the external genitalia as aseptic as possible with soap and water and with the bichloride solution. I always see that the external genitals are clean.

DR. REAMY.—Yes. The traumatism that occurs in ordinary cases, the traumatism about the cervix, does not occur until the patient is in the process of delivery; usually it occurs when the head or shoulder is born and sometimes when forceps is used. In the healthy state these parts are soon covered over by the fluids from the uterine cavity. The sterilization of the vagina by the antiseptic injections prior to delivery has been referred to. If the germs in the vagina are not pathological they can do no harm. Strong antiseptic solutions thrown into the vagina before or during labor destroy the normal lubricating fluids of the vaginal mucous membrane, which assist in the preparation of the parts for the easy birth of the child. That antiseptic irrigation not only prevents the lubrication of the parts and makes it an unnatural case and to a slight degree retards the labor, but it makes the parts in a better condition to receive germs, so they may enter the lymphatic channels or even get in along the veins. So even with antiseptics you can do damage. It would be far better, if a tear occurs, to introduce a speculum and make the antiseptic application directly to the traumatism itself, just as you would on your hand if you injured it. That would be good surgery. I would like to have the privilege of going on record in regard to one point. The doctor has spoken about the epidemic in this city. That epidemic of puerperal fever was limited by the health officer finally taking efficient measures to stop the attendance of cases by two of the midwives. The contagion was carried from one case to another by certain midwives and some physicians. As soon as this was stopped the disease subsided. My own sister died in the year 1848 near Zanesville, O., from the infection brought to her by her physician. The epidemic was largely spread in that rural community by two men. Not only one woman, but sixty or seventy cases occurred within a territory of a few miles square. There was scarcely a woman delivered by either of these men but died. In notable instances women living several miles remotely in neighborhoods where no case of the disease existed, but being delivered by one of these physicians, the

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fatal puerperal septicemia followed. Finally these gentlemen discontinued obstetric practice for three months, their cases being attended by a local physician not so able as either of the two named, whereupon not another case occurred. These gentlemen now resumed practice and no further cases occurred. This is all old, but it proves as clearly as any fact can be proven clinically that the germs producing the disease were specific and that they were carried to the helpless victim by the accoucheur. It answers much that has been said here to-night. Residing in the midst of the afflicted community, as I did at the time, the impressions made upon my youthful mind are lasting. All this occurred in a territory about nine miles northwest of Zanesville, O.

DR. PORTER.—I am very glad that this discussion did go outside of the paper, because in the limited time it was impossible to cover all the points. I was disappointed, however, that more time was not given to discussing the means by which sepsis can be avoided in private practice without the expenditure of too much time and energy. The first speaker spoke of suturing the cervix. I have had two cases. In the first case I did it for the purpose he mentioned, to stop hemorrhage. In another case I tried it, but did not get good results; the cervix was thin, as it always is after labor, and the stitches cut out and did not do much good.

I do not think anything can take the place of ordinary cleanliness. I believe if every case were subjected to careful cleansing there would be very few septic developments. I believe, though, that the next few years will see some very radical changes of opinion as to the antiseptic injections before labor. I myself have never used them, except where I have suspected infection or to prepare for operative procedures. The bacteriologists have shown that the vagina is the habitat of certain pathological organisms, and the reason we do not have trouble is because the secretion of the vagina is acid and has an inhibitory influence on the germs.

DR. STANTON.—Why wash it out, then?

DR. PORTER.—Well, it is said that for a while after labor the inhibitory power is lost, just when you need it.

DR. STANTON.—Would not the inhibitory or destructive power of bichloride of mercury be lost in that time?

DR. PORTER.—Its action is, of course, limited to the time when it is used, but there have been a number of cases of even fatal poisoning from the use of bichloride.

DR. MITCHELL.—Nearly all the cases of fatal poisoning from bichloride have occurred from washing out the peritoneal cavity.

DR. PORTER.—If you have a deep vaginal tear you have a surface also which absorbs very readily. The bichloride may also produce a limited gangrene of the torn tissue. You may then have some failure of union in case the tissues are sutured. Those who object to vaginal examinations object to them because there is danger of carrying into the uterine cavity those

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germs which are normally in the vagina. They insist that the finger should not be carried into the cavity of the uterus when a vaginal examination is made. In regard to irrigation after delivery, I think that plan is not so popular as it was a few years ago when the antiseptic craze was at its height, and if the labor is conducted under antiseptic precautions I cannot see the utility of continuing such injections after labor. It would be like opening up a wound after it is closed for the purpose of irrigating it. Of course the analogy is not complete, for the vagina is not sealed. Dr. Bonifield suggests that the position I recommend would be objectionable. The position across the bed, with the hips at the edge of the bed, does not necessitate exposure. With stockings and sheets the patient can be entirely protected. With the woman in this position the physician can have better control of the case than in any other way. It seems to me that the liability of infecting the fingers with fecal matter or otherwise, when the patient lies in the usual position on the bed, is objectionable. If you give some reason, such as to use warm water for the purpose of relaxing the cervix, there is no objection. Being sure my hands are clean and not touching anything until the child is delivered, then I have the child put on a blanket on the woman's abdomen and I cut the cord. My usual method is to have the patient's legs out straight and support them over my knees.

DR. BONIFIELD.—Does that interfere with her bearing-down efforts?

DR. PORTER.—With her thighs supported she can get all the action she needs.

DR. MAGNUS A. TATE read a paper on

PUERPERAL GANGRENE.[1]

DR. GILES MITCHELL.—I had the privilege of seeing a case of puerperal gangrene in the practice of Dr. Reamy some fifteen years ago. He had seen the case in consultation with Dr. Keck. The gangrene developed nine or ten days after delivery, the result of phlebitis of the right leg. The case was not altogether one of dry gangrene; at first it was apparently dry, but in a short time the line of demarcation was present. The patient survived to the eighteenth day. My recollection is that no examination of the urine was made. The patient was apparently a strong, healthy woman of about 40, and this was her third or fourth labor.

DR. PORTER.—I would just like to ask why this is called *puerperal* gangrene and whether there is any connection between the puerperium and the gangrene. As far as I could learn from the paper there is no connection, and therefore I cannot understand why it should be called puerperal gangrene, any more than an attack of pneumonia following labor should be called puerperal pneumonia.

[1] See original article, p. 501.

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DR. RALPH TATE.—I had a case of dry gangrene not long ago in which the patient passed only a small quantity of urine. The case was complicated with a very weak heart, double hydrothorax, and ascites, and on that account amputation could not be thought of. The patient survived for a time, but subsequently succumbed from weakness in combination with the dry gangrene.

DR. ORR.—There are two or three points that interest us. First, as to what may have been the cause of the gangrene. It may have been due to thrombosis or embolism, or the albuminuria of pregnancy as in this case; it is well known that gangrene often follows Bright's disease. Indeed, gangrene is one of the not uncommon accompaniments of Bright's disease. The case reported is to be traced, I suppose, almost certainly, from the doctor's description, to the kidney trouble. I have had cases myself, not in the puerperium, but in kidney disease. I have made an amputation, but the disease recurs. The only thing you do by amputation is to make the patient more comfortable and possibly prolong life. For a time there may be an abeyance of the progress.

DR. PALMER.—Do you amputate above the thrombotic place?

DR. ORR.—Yes.

DR. PALMER.—Then how do you explain the repetition?

DR. ORR.—It is due to the kidney trouble.

DR. PALMER.—I would like to have a little attention devoted to a question I think Dr. Porter presented—*i.e.*, is there anything in the condition of pregnant women or in the puerperal state conducive to puerperal gangrene? I think there is. It is a well-known fact that in pregnancy the blood changes are peculiar. We may say pregnancy is a physiological condition; we may say that the blood changes incident to pregnancy are physiological, and so they are, yet at the same time there are changes there that border on the pathological. There is a diminution of the red blood corpuscles, a relative increase of the white blood corpuscles, and an increase of the fibrinous elements, a hydremia and a hyperinosis. That condition is found also following other conditions and diseases. Thus it may be found in the convalescence of typhoid fever and other acute diseases. No doubt the blood change is a predisposing cause, and there ensues an embolism or thrombosis. A gangrene in a lower extremity, in the puerperal state and other conditions, differs from phlegmasia alba dolens in that the trouble there is venous, whereas here it is arterial. The exciting cause may be some material thrown out from disease of the heart or the vessels; or there may be spontaneous coagulation, and the coagulum is carried along until it comes to a small vessel beyond which it cannot pass. I believe, also, that active predisposing causes of this condition are loss of blood and sepsis. It is well known that this condition follows in women who have lost considerable blood, as from placenta previa.

DR. PORTER.—I would like to ask, if this is true, why is the disease so remarkably rare in pregnancy? I understood the

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essayist to say it is very rare, and he quoted the very few cases he has been able to find.

DR. REAMY.—I would like to ask Dr. Palmer whether or not he thinks the enormous increase in the relative proportion of the white corpuscles prevents the white corpuscles from keeping on the outside of the arterial lumen—that is, next the vessel wall—and the red blood corpuscles running in the centre of the stream, as they do normally. May not the white corpuscles drift in the current with the red blood corpuscles, and there be prevented proper oxidation of the tissues?

DR. PALMER.—As I understand the condition, there is an increase of the white blood corpuscles which is both relative and absolute, and the increase of the watery elements is relative and absolute. I cannot answer the question further.

DR. MAGNUS TATE.—Unfortunately in this case I was not able to obtain a postmortem. The question Dr. Porter asked, as to why we should call this puerperal gangrene, was one I fully expected. The idea occurred to me that probably there might be in some way an over-secretion of the fibrin in the blood—that there might be an immense amount of fibrin which would cause the formation of some coagula. I am not able to explain it. As I tried to show, the condition occurs only very rarely.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

General Sepsis following Abortion.—Fränkel[1] reports an interesting case of general sepsis probably following abortion. A servant girl 23 years old was admitted to the hospital presenting the following condition: Gangrene of the middle and index finger of the right hand, and gangrenous blisters on the soles of the feet; hemorrhages into the conjunctiva and the skin of neck and trunk; severe chills and high temperature. A careful examination of the chest and abdomen and also the patient's history gave no clew as to the cause of sepsis. In making a vaginal examination the abnormal flabbiness of the cervix and uterus aroused suspicion, and, in spite of the patient's denial, the sepsis was thought to be due to a criminal abortion. Blood cultures showed the presence of innumerable staphylococci. A subsequent postmortem showed an endocarditis myotica. The kidneys contained a large number of abscesses and emboli. The examination of the uterus showed that the suspicion of abortion was justified, the situation of the placenta being plainly recognizable, and its site was covered by a diphtheritic membrane.

Prochownik's Diet of Pregnancy.—Pradon[2] reports a case in which craniotomy had to be performed in two successive pregnancies on account of excessive size of the child. During

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the next pregnancy Pradon placed the woman upon a diet deficient in carbohydrates, and the result was the delivery of a lean but living child.

The Effect of Phlorizin upon the Mammary Secretion has been carefully investigated by Kremer,[3] who reported the results at a recent meeting of the Society of Morphology and Physiology of Munich. According to Cornevin, injections of phlorizin double the percentage of sugar in milk. The investigations of Kremer, which were made upon cows receiving accurately known quantities of hay per day, led to entirely different results. The percentage of sugar was not increased after the injections of phlorizin, the quantity of milk was lessened, and there therefore was a *lessened* excretion of sugar by the mammary glands. The urine contained large amounts of sugar. According to Kremer, Pappenheim has made a similar investigation upon goats, with identical results.

Location of the Placenta.—Lindstrom[4] has investigated the location of the placenta, according to the method of Leopold, in about 100 cases, and to control its correctness he made a controlling examination five or six days postpartum. At that period an examination is easier than immediately after delivery, and if aseptic precautions are taken it is almost free from danger. The results of this investigation are that the placenta was correctly located in 92 per cent. The diagnosis can be made as early as the fifth or sixth month. The location of the placenta is not without practical value; for in cases of Cesarean section the incision, or when inducing premature labor the introduction of the bougie, may be modified to avoid causing injury to the placenta.

Accidental Hemorrhage.—At the last meeting of the Berlin Medical Society, Dührssen[5] reported an interesting case of premature detachment of the normally implanted placenta. He was called to a multipara who awoke in the early morning with abdominal pains constantly increasing in severity. There was only a slight oozing of blood from the vulva, yet the woman presented all the symptoms of severe acute anemia, with a radial pulse barely perceptible. According to the patient's statement she was about eight months pregnant. The uterus was enormously distended, hard, and exceedingly sensitive upon pressure. Owing to the distension, fetal parts could not be felt, neither could heart sounds be heard. The os was the size of a silver dollar, membranes intact in close apposition to the head, which was movable above the brim. The diagnosis of premature detachment of the placenta was made, and, as the child was unquestionably dead, Dührssen at once perforated and delivered. The extraction of the child was followed by the expulsion of an enormous mass of clotted blood, immediately succeeded by the detached placenta. The uterine surface of the latter showed the evidences of tremendous compression, the usually slightly convex surface being altered into a deep depression into which blood clots had been forced. As the uterus did not contract and the hemorrhage continued,

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Dührssen introduced the hand within the uterus, removing more blood clots, and finally tamponed its cavity with gauze. This arrested the bleeding, and under appropriate treatment the patient gradually recovered from the shock and loss of blood. The placenta showed unmistakable symptoms of decidual endometritis. In discussing this case Dührssen states that accidental hemorrhage is a most serious complication of pregnancy; that its maternal mortality is about fifty per cent, while only an exceedingly small fraction of children are born alive. The life of the fetus should not be taken into consideration, and the indications are "immediate and rapid delivery." If closed, the cervix should be dilated with the fingers or rubber dilators; and if this is impossible, Cesarean section may be performed. The diagnosis of this grave condition is not very difficult. The most pronounced symptoms are excessive anemia and marked and painful distension of the abdomen. Bleeding from the external genitals may be present or absent.

Brow Presentations and their Treatment.—Rose[8] describes a case of brow presentation in which the liquor amnii had escaped and rupture of the uterus was threatened. Baudelocque's method of bringing down the occiput proved unsuccessful, as was also an attempt to apply the forceps in the oblique diameter. Rose then introduced two fingers into the mouth, and during a pain he pulled down the face, at the same time rotating it anteriorly. He next applied the forceps and delivered a living child with comparative ease. Rose lays particular stress upon the necessity of making the downward traction during a pain, because in that case the traction is supplemented by the expulsive force of the uterine contraction. After discussing the definition of brow presentations, their etiology and prognosis, Rose formulates the following rules and indications for treatment: Every movable brow presentation must be changed into an occiput presentation. In case of prolapse of the funis, placenta previa, and other conditions necessitating rapid delivery, podalic version is the preferable method of treatment. To change the position of the head either Schatz's or Thorn's method may be used. The former is free from danger, but has the disadvantage that the head is apt to return to the abnormal position. In case the head has descended into the pelvis it should be changed into an occiput or face presentation. During the pains traction upon the upper jaw should be made, and, if all the manipulations fail, expectant treatment, and in case of danger craniotomy is advised. If the child is dead all these manipulations may be resorted to, if not subjecting the mother to any dangers; otherwise craniotomy should be performed.

Inversion of the Uterus.—W. A. Mackey[9] reports a case of inversion of the uterus. At the end of seventy-two hours the reduction was nearly complete. He then left the patient for twenty-four hours, with a large cup repositor in place. When he next saw the patient the reduction was complete and the cup was inside the womb and could not be withdrawn. To

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remove the cup he was forced to split up the posterior lip of the cervix its entire length.

Josephson[8] publishes two cases of inversion of the uterus in which Küstner's method of reduction proved unsuccessful. A woman 42 years old sustained an inversion seventeen years ago after her first and only confinement. Two weeks later attempts were made to reduce the inversion by means of the colpeurynter and similar appliances. The woman was in a very anemic condition from almost continuous bleeding, and she desired relief. Josephson operated after Küstner, dividing the posterior uterine wall from below upward, extending the incision up and into the fornix. The reduction of the inversion proved, however, impossible even after dividing the fundus, and Josephson therefore removed the whole uterus. In the second case a IIpara 27 years old had her uterus inverted through pressure upon the fundus and traction at the cord. Immediate reposition did not succeed, but, as there was no further bleeding, the case was let alone. After three months the patient began to bleed and became anemic. The attempt was made to reinvert the uterus after Küstner's method, but, not succeeding, the author removed the uterus.

Netzel[9] reports a case of inversion of the uterus successfully treated with Küstner's method. A VIpara 31 years old had a normal delivery, but the attending midwife "worked" for two hours to express the placenta. This was followed by a severe hemorrhage, treated by tamponing the vagina. The patient entered the clinic seven months later. There was complete inversion of the uterus, which resisted all attempts of mechanical and manual reduction. Netzel then concluded to perform Küstner's operation, which was eminently successful. The patient left the clinic seventeen days later and has since then been pregnant.

Rupture of the Uterus.—W. J. Cook[7] reports a case of spontaneous rupture during the first stage of labor. The child was delivered through the vagina, the woman being too weak for abdominal section. Six hours after delivery the woman died.

Hübl[6] reports an interesting case of spontaneous rupture of the uterus. A Xpara, badly nourished, entered the clinic, stating that for three weeks she had had frequent hemorrhages from the genitals and that her limbs were swollen. An examination showed that the heart, lungs, and kidneys were healthy, the pelvis normal, and that the cervix, which admitted two fingers, did not contain placental tissue. The head of the child, of rather large size, was above the pelvis. To increase the pains a colpeurynter was introduced and the woman placed in a hot bath. Two hours later the colpeurynter was removed, and, in spite of slight pains, the os was found to be fully dilated. The membranes were ruptured; no loss of blood. A few minutes later the woman complained of severe pain, and it was observed that the contours of the abdomen were changed, it appearing as if the bladder had ascended up to the umbilicus.

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Immediately afterward occurred the spontaneous expulsion of a living child, which was followed by large quantities of fluid and clotted blood. There was no further bleeding, but the pulse became weaker and the patient looked bad. After removal of the placenta a transverse tear, about eight centimetres in length and situated just above the contraction ring, was found. The tear extended through the muscular layer only; the peritoneum, apparently intact, was detached and formed a large pouch. The uterus was tamponed and, through external compression, fixed in an anteverted position. There was no further hemorrhage, and under the administration of restoratives the patient's condition rapidly improved. Six hours later the woman suddenly collapsed and died before other means could be resorted to. The examination of the uterus showed a sharply defined tear including the muscularis and mucous membrane. The peritoneal covering was in part intact and ballooned out, the resulting cavity being filled with quantities of blood clots.

Stschetkin [10] reports the following case: A multipara 27 years old was sent to the hospital with rupture of the uterus and an arm presentation. After extracting the decapitated child a tear in the right fornix vaginæ, extending into the cervix and up to the internal os, was found. Extensive injuries to the surrounding structures led to the formation of a retroperitoneal cavity, into which the fetus and the placenta had escaped. The temperature after delivery was subnormal. The cavity discharged necrotic fragments of tissue. On the eighteenth day postpartum Stschetkin made a lumbar incision for the purpose of drainage. The results of this incision were decidedly beneficial, and two months later the woman was entirely cured. Stschetkin, encouraged by the above experience, advises lumbar incision and drainage in all cases of subperitoneal rupture of the uterus. He also believes that this would be a good method of treating cases of general purulent peritonitis.

Mars [11] describes a case of spontaneous rupture of the uterus during labor in which the whole organ was removed by laparatomy. A woman 40 years old, who had had eight normal confinements, was in labor four days. After an excessively severe pain there was a discharge of blood. Labor pains ceased after this, but the woman complained of abdominal discomfort and looked bad. The patient was transferred to the clinic, where the following condition was noted: The patient was strong and well developed, pulse 120, temperature normal, abdomen distended; head movable in the right iliac fossa, feet to the left and below the umbilicus. The head can easily be pushed upward, whereupon blood clots are expelled. Diagnosis: rupture of the uterus with expulsion of the child into the abdominal cavity. Laparatomy was performed. It was then seen that the uterus was nearly entirely detached from the vagina and that its only fastenings were the broad ligaments. The anterior peritoneal covering was detached and torn. The uterus was removed *in toto;* ventro-vaginal drainage and closure of the abdominal wound. Convalescence was tedious but complete. Subsequent

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measurements showed that the pelvis was contracted, this being probably the cause of the rupture.

Schaeffer [10] reports a case of spontaneous rupture of the uterus during labor. According to the midwife the woman, a VIpara, had been in continuous pains for five days. This long duration, however, caused no uneasiness, as the previous confinements had always been rather tedious. The membranes ruptured on the fifth day. The woman was apparently in a moribund condition; the abdomen was distended and painful. The feet of the fetus were immediately below the xiphoid process, the head behind the symphysis. It became clear that rupture of the uterus existed, but the position of the fetus was so unusual that the possibility of a twin pregnancy was taken into consideration. The forceps was applied to the head and a very large child was delivered. After the placenta had been expressed, the hand, which was introduced into the uterus to find the extent of the rupture, encountered a structure resembling an umbilical cord. This proved to be a coil of intestines, which were quickly replaced. The rupture was situated in the anterior wall and about twenty centimetres in length. The uterus was massaged to induce contraction, a strip of iodoform gauze introduced into its cavity, and heavy compresses and ice bags were placed upon the abdomen. Internally he administered ice and champagne. Schaeffer considered the case beyond medical aid, but to his great surprise the woman recovered. He delivered the woman some years later, and, the placenta being attached, he had occasion to introduce the hand into the uterus. He found a well-defined scar, which is contrary to the statements of Freund, according to whom scar tissue does not form within the uterine walls.

Delivery Three Years after Symphyseotomy.—Hansen [11] reports an interesting case showing that the increased pelvic diameters after symphyseotomy may remain permanent. A woman 36 years old gave the following history: First confinement difficult, instrumental, still-born child; second confinement. threatening rupture of the uterus, symphyseotomy, separation of the symphysis six centimetres, forceps delivery. The operation left the patient in perfect health and did not interfere with her working capacity. Three years later the woman again applied for delivery; child in transverse position; os dilated; prolapse of the pulseless cord. Version was performed and was followed by the spontaneous expulsion of the child. During delivery of the child the symphysis separated to the extent of three centimetres, thus largely increasing the diameters of the pelvis. This delivery also left no bad after-results.

Relations of Face Presentations to Contracted Pelvis.—Retze [12] collected the cases of face presentations occurring in the University Clinic of Bonn during the last ten years. These were 17 in number. The results of this examination are the following: Contracted pelvis in 8 cases; in 4 cases the pelvis was relatively small, the head of the child being abnormally large. Thus a disproportion between the head and the pelvis is

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certainly an important factor in the formation of the face presentations. However, this is not the only one, and a number of conditions must coexist. In 8 cases labor terminated spontaneously; in 4 cases forceps was applied; podalic version was performed 4 times, and 1 case necessitated craniotomy. In 2 cases the attempt was made to change the face into an occiput presentation, without success, because upon removing the hand the face again descended.

Monstrosity.—Hübl[9] describes a monstrosity borne by a healthy primipara. The eyes are absent, but at the root of the nose there is a large bulbus, upon which two pupils can be recognized. Above this is seen a penis-like formation. Besides other characteristics of cyclops, in which category this monster must be classed, there exist hydrocephalus, umbilical hernia, atresia ani, clubfeet, supernumerary fingers, a persisting foramen ovali, double atresia of the ureters, and double hydronephrosis. Normal quantity of liquor amnii. The child was delivered alive, but died after breathing a few times. The woman ascribes this monstrosity to the fact that when three weeks pregnant she was frightened by a mad dog. In this case the period of maternal impression coincides with the period of embryonal development to which the formation of this monstrosity is usually referred.

D. L. Shaver[10] delivered a woman of a girl baby with an acephalous monster attached to its breech. The child and monster together weighed eighteen pounds. The union extended from the sacrum to pubes, entirely obliterating the nates. The monster was separated from the child. The living child weighed five pounds.

Porro's Operation.—S. Savage[11] performed Porro's operation on a dwarf. The child was removed alive and seemed to be well formed.

Axis-traction Forceps.—Stadtfeldt.[12] During the years 1892 to 1895, 6,294 confinements occurred in the Royal Maternity Hospital in Copenhagen. Of these, 242 were delivered by forceps. Considering that the proportion of primiparæ to multiparæ was as 100 to 73, this is not a very large percentage. The axis-traction forceps was used in 45 cases. Stadtfeldt states that the head should either be fixed or in the pelvic inlet before the forceps is applied. If properly performed and the aforementioned indications are observed, the operation is free from danger, but the mortality to the child is rather high, 16 per cent being still-born. If the head does not advance after three or four tractions Stadtfeldt advises perforation.

GYNECOLOGY AND ABDOMINAL SURGERY.

Deciduoma Malignum.—Laennberg[13] has investigated all cases contained in the current literature, 53 in number, and these show the interesting fact that in 24 cases the new growth appeared after an immediately preceding molar pregnancy. A

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new case is also published, which was operated upon by Netzel, and of which the following is the abbreviated history:

A woman 42 years old was delivered of a large hydatid mole followed by bleeding. Four weeks later the somewhat enlarged uterus was removed by laparatomy. During the operation metastases were observed in the vagina and extirpated a few days later. After one year no recurrence. A microscopical examination of the new growth shows it to consist of two cell elements—syncytium formed by flattened giant cells, containing numerous vacuoles, and large polygonal cells with well-defined contours A direct transition of the tumor into the structure of the uterine walls is not found, but the former extends into the healthy tissues in the form of papillæ. In the main the author agrees with Marchand's theory, holding that the serotinal epithelial cells have undergone a malignant proliferation and that both these and the polygonal cells are of maternal origin.

Karström and Vestberg[19] report 2 new cases, together with a careful investigation of this subject. A woman 32 years old, who gave a history of premature deliveries, had a hydatid mole which was expelled after dilatation of the cervix. Four weeks later the patient began to bleed, and an exudation was felt at the right side of the uterus. Soon afterward a tumor occupying the left side was discovered, which grew rapidly and soon extended up to the navel. Laparatomy was performed, and the uterus, together with the adnexa and two ovarian tumors, was removed. An examination of the extirpated uterus shows a tumor, originating from the posterior wall, the greater part of which is in a necrotic condition. It consists largely of a framework of protoplasm with numerous nuclei, but without defined cell bodies. The framework is interlaced, and at the points of junction small spaces are seen, free from intercellular substance and fundamental tissue, and not possessing either lymphatics or blood vessels. The framework contains numerous vacuoles, in their interior blood corpuscles, and indistinguishable cell fragments and well-defined cells. The transition of the living into the necrotic tissues is a very gradual one. The most recent parts of the tumor represent single or ramified strands of protoplasm. The nuclei are large, oval, and rich in chromatin. Where these tissues enclose the necrotic portions the picture recalls chorion with a syncytial covering. In the second case there existed a small necrotic tumor also extending from the posterior uterine wall. The woman gave the history of three deliveries at full term and three abortions. The last occurred six months ago while three months pregnant, and was followed by an irregular bleeding affecting the patient's general condition. The uterus was removed after a preliminary curettement for diagnostic purposes. The disease did not recur one year later. The microscopical structure of this tumor is similar to the first case, only more complicated. The syncytium is intermingled with a cell mass forming the greater part of the tumor and different in character. The syncytium

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forms a framework which divides the latter structure into alveoli and irregular masses. The new growth invades the healthy tissues in the form of finger-like processes consisting mainly of syncytial elements. In discussing these cases the authors state that Case 1 is mainly of syncytial type. The second case is of the mixed type, but does not contain decidual cells. The interlacing of the syncytial tissues, and the enclosure of the detached cells within, prevent particles of the new growth from being swept into the lymph channels and lessen the liability of secondary deposits. This type of new growth does not organize with the surrounding structures, and, being deficient in blood vessels, it is quite apt to undergo necrotic changes.

The authors state that these tumors should not be classed as carcinomata, and they also deny their sarcomatous nature. At present a scientific classification is impossible, but there can be no doubt that the so-called deciduoma is a distinct and new type, the malignant character of which, however, is not quite certain.

Diverticulum of the Bladder.—Hofmokl[21] describes a very large diverticulum of the bladder observed in a woman. The diverticulum was about the size of a child's head and continuous with the bladder through a narrow duct about one centimetre in length. There existed catarrh of the bladder. The diverticulum was filled with pus. The enormously thickened walls consisted of muscular tissue. The mucous membrane presented numerous polypoid excrescences. On account of existing catarrh an operation could not be performed.

The Ovaries in Mammals.—Stratz[22] read this most interesting paper at the Obstetrical Society of Berlin. The examinations comprised 469 subjects of tupaja juvanica, 143 subjects of sorex vulgaris, and 600 subjects of tarsius spectrum. Tupaja and tarsius menstruate, and the ovaries of the latter resemble the human ovaries in many respects. The principal results of these very exhaustive investigations are the following: The germ epithelium forms new oval cells throughout the whole sexual life. Impregnation may occur in both the tube and the ovary. During every menstrual period there degenerate not only mature follicles, but also a number which have not yet reached a mature state. If pregnancy occurs all follicles which have attained a certain stage of maturity degenerate; the degeneration is generally of a hyaline type. There is absolutely no difference between the corpus luteum menstruationis and graviditatis The latter at the end of pregnancy is almost entirely obliterated. After conception the number of corpora lutei is analogous to the number of ruptured follicles, but irrespective of the number of growing embryos. A corpus luteum consists of cells of the membrana granulosa and intima; the latter comprises connective tissue and blood vessels. A hemorrhage within the central cavity of the corpus luteum is always secondary and, contrary to common belief, is frequently absent.

A New Cystoscope.—Albarran[23] describes a new instru-

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ment which simplifies the catheterization of the ureters and permits the introduction of a large sound. The advantages of this instrument are that it combines a cystoscope, ureteroscope, and an irrigation apparatus. The visual field is very large, so that the openings of the ureters may be found with the same ease as with a cystoscope. The illumination is said to be excellent, and the catheterization of the ureters may be performed in man with the same ease as in woman. The movements of the catheter can be well regulated, and, as the mobility of the tip is very great, an entrance into the ureter is quickly effected even in difficult cases. The direction of the sound from below upward and within outward is favorable for an examination of the renal pelvis. The lumen of the instrument is large, permitting the introduction of a catheter No. 8.

Cystitis.—Melchior.[14] Every case of cystitis is caused by bacteria, and among these the bacterium coli commune is most frequent. The simple fact that bacteria are introduced into the bladder is not sufficient for the production of a cystitis, as certain predisposing conditions must also exist. The existence of a catarrhal cystitis is questionable, as the urine always contains pus corpuscles. Ammonuria is a phenomenon of secondary importance because the urine in true cases of cystitis may have an acid reaction. There can no longer be any doubt that the gonococcus of Neisser produces a typical cystitis. To avoid cystitis an aseptic condition of both the orificium and the whole canal of the urethra is necessary. The most valuable local remedy is a solution of silver nitrate. Irrigation with four per cent solutions of boric acid is useless.

Treatment of Gonorrhea.—Landau[15] points out that it is exceedingly difficult to estimate the duration of an attack of gonorrhea, on account of the liability of renewed infection. Vulvo-vaginitis of children is about the only condition permitting a judgment as to the length of time over which an attack of gonorrhea may extend. Landau cites some cases of pyosalpinx in young girls which could be traced back to an attack of vulvo-vaginitis acquired during infancy. As to the potency of the new antiseptics recommended for the treatment of gonorrhea, Landau believes that their value is much over-estimated. The gonococcus is a parasite which grows and flourishes in the depths and recesses of the tissues and is not easily accessible to antiseptic agents. Landau states that the treatment now in vogue is apt to do more harm than good, and emphatically warns against too much treatment.

At a recent meeting of the Berlin Medical Society, Behrend[16] made the statement that in his experience none of the new, highly praised chemical agents for the treatment of gonorrhea had any advantage over the older remedies. To his mind greatest bactericidal property was not equivalent to the best therapeutic action, because the powerful corrosive sublimate was found to be valueless. In men cases of acute gonorrhea are best treated by rest in bed, application of ice, and later by astringents. It is not an infrequent observation that the gono-

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cocci disappear from the discharge while the clinical symptoms continue, but the disappearance of clinical symptoms in the presence of gonococci is rarely met with. In the treatment of prostitutes, and also in others, the question is an important one: When and at what period does the possibility to infect cease? Neisser and his adherents state that the danger of infection ceases only with the disappearance of the gonococci, while Behrend and many others lay greater stress upon the disappearance of the clinical symptoms. In the above-mentioned class of patients two types of disease are met with—namely, those suffering from an acute attack manifested by a vulvo-vaginitis, and a more chronic form with a purulent discharge from the urethra, cervix, and Bartholin glands. In the treatment of these cases Behrend uses irrigation of a solution of alum and applications to the cervix of ten per cent solutions of chloride of zinc. The urethritis and Bartholinitis require no treatment. Erosions of the vagina are benefited by insufflations of iodoform. The treatment of chronic cases is far more difficult, and in some cases the removal of the bacteria is almost impossible. In these cases Behrend recommends cauterization with nitrate of silver.

Malingerer simulating Renal Disease.—Casper[23] reports the case of a young girl 23 years old who stated to him that for the last two years she was a sufferer from pains located in the region of the kidneys. Upon palpation nothing abnormal was found. The urine, spontaneously voided, was turbid, of acid reaction, and contained large quantities of fat. If, however, obtained by the catheter, it was clear, acid in reaction, and free from fat. A bottle containing sour milk was discovered in one of her pockets, and without her knowledge some iodide of potash was added to the milk. After this her bladder was irrigated with boracic acid. The girl was now left alone and asked to pass some urine. Then it was found that the boracic acid solution contained fat and gave the reaction of iodine.

Atrophy of the Uterus.—That vaporization of the uterus is not as harmless a procedure as its admirers would lead us to suppose is demonstrated in a case of complete atrophy in consequence of vaporization. Baruch[24] reports a case in which vaporization after Sneguireff was practised in a primipara 27 years old, on account of severe menorrhagia. This was followed by complete occlusion of the cervix, atrophy, and the well-known disturbances observed in premature climacterium.

Hematoma Vulvæ et Vaginæ Postpartum.—Wettergren[25] reports the case of a IXpara, 42 years old, who had a normal delivery with spontaneous expulsion of the placenta. A few hours later the patient awoke with severe pain and a sensation of distension in the perineal region. A swelling soon made its appearance, which in three hours had attained the size of a child's head. This swelling was formed by an immense hematoma including the left side of the vulva and the posterior vaginal wall. Wettergren ordered absolute rest and the application of ice, but otherwise did not interfere. The swelling

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ruptured three weeks later, after which its cavity was thoroughly cleaned out and tamponed with gauze. The patient made a good recovery. Regarding the etiology of this condition, Wettergren states that he observed no varicose veins in this region, nor was the patient a so-called bleeder.

Hot-air Apparatus.—Hollander[8] has constructed a hot-air apparatus which he has used with great success in tuberculous and other infectious processes of the skin. He believes that it could be used with great advantage in postpartum hemorrhage, infections of the endometrium, chronic catarrh of the cervix, and inoperable cancer of the uterus. The advantages of hot-air treatment over the vaporization recommended by Sneguireff are that a three times higher degree of heat can be used; thus its effect is far more intense. The regulation of temperature and the concentration of the effect, thereby avoiding injuries to the surrounding structures, are also said to be an improvement over Sneguireff's apparatus.

Abdominal Incision.—Lennander[9] was in the habit of making the abdominal incision through the substance of the rectus muscle. In doing this he observed that the epigastric arteries frequently required ligation and that division of the nerves could often not be avoided. He now advises the following method, which he has successfully practised during the last two years and a half: The incision is placed one centimetre laterally of the median line, extending through the skin and anterior sheath of the rectus muscle. The border of the latter is freed, displaced toward the median line, and the incision then continues through the posterior sheath and the peritoneum. The latter is fastened with a few catgut ligatures. In closing the incision he places continuous catgut sutures through the peritoneum and posterior sheath of the rectus muscle. Next the muscle is fastened to its sheath by a number of interrupted sutures, and finally the anterior sheath and skin are closed by deep and superficial sutures of silkworm gut.

Laparatomy.—Neugebauer[10] writes that many abdominal operations could be simplified by a preceding distension of the vagina with the colpeurynter. Through this method the small organs occupying the pelvis are lifted up and are made more accessible.

Emphysema of the Abdominal Wall.—W. Van Hook[11] reports the case of a woman on whom he performed laparatomy. The wound was sutured by figure-of-eight sutures. On the morning after the operation air was discovered under the skin. This air gradually diminished in quantity, and finally disappeared without causing any trouble.

"Hydrops Chylosus."—According to Quincke,[12] one must differentiate between hydrops chylosus and hydrops adiposus. The former contains an admixture of chyle. The fat of the latter originates from a fatty degeneration, and is especially observed in carcinoma and tuberculosis peritonei. Czerny reports a case of hydrops chylosus of the abdominal cavity occurring in a young girl 18 years old, developing within four

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months, with simultaneous anasarca of the lower extremities. The examination of the heart and liver showed nothing abnormal. The urine, deficient in quantity, contained traces of albumin, but no casts. Paracentesis, repeated at short intervals, removed large quantities of a yellowish, milky fluid. The abdominal cavity refilled within a few days. Laparatomy showed the existence of sarcomata about the size of a fist and involving both ovaries. These organs also contained small cysts. The tumors filled the pelvic inlet and probably were pressing upon the iliac veins. This may have caused the edema of the lower extremities, but clinical experience also shows that sarcomata of the ovaries produce ascites quite early. The admixture of chyle is hard to explain. Tuberculosis could certainly be excluded, but the examination of the tumors revealed an alveolar structure with a tendency to a hyaline degeneration. Czerny classes the tumor amongst the angiosarcomata. As is well known, these tumors invade the lymphatic glands. This may have caused a stagnation into and rupture of the lymph channels, and, if such is the case, the ascites will soon reappear.

Mechanism of Inversion of the Uterus.—Hector Treub" gives the causes of inversion which occurs immediately after labor as relaxation and inertia of the uterine wall and traction or pressure. For inversions which are not connected with labor he gives the following explanation: It is generally the sessile fibroids, and even the smaller ones, that cause inversion. The base of a sessile tumor cannot contract because of the implantation of the tumor, which diminishes or altogether abolishes the contractility of that part of the wall and also the surrounding parts. If from the outset the tumor was intramural, the smaller degree of resistance of that part of the uterine wall, coupled with intra-abdominal pressure, may cause a slight beginning of inversion. When this is the case the conditions are essentially the same for sessile and intramural tumors and for the partial inversion described by Rokitansky. After the inversion has started, as stated above, the circle of uterine tissue is abruptly curved in and is absolutely paralyzed. This paralysis will not be confined to a linear circle, but extend over a greater or smaller surface. The part turned in acting as a foreign body, the normal part of the uterine wall will try to expel it. These expulsive efforts may slightly increase the inversion as far as the paralysis surrounding the circle of inversion permits, thus displacing the circle itself and paralyzing another part of the uterine wall. Necessarily the extension of the partial paralysis proceeds further in the uterine wall too, and by the repeated action of this muscular play the inversion may become complete. It is the intra-abdominal pressure again that may invert the cervix.

Enteroptosis.—In discussing a new method of defining the lower border of the stomach Langerhans" also dwells upon the etiology of enteroptosis. This condition is often of post-puerperal origin, but chlorosis and nervous dyspepsia are not

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unimportant factors. Enteroptosis manifests itself frequently through symptoms of a dyspeptic, neuralgic, and neurasthenic nature. The treatment, besides bandages and massage, must devote itself largely to improving the nervous system.

Solid Ovarian Tumors complicating Pregnancy.—W. E. Swan " reports a case of a pregnant woman with a solid tumor of the left ovary. He operated and removed the tumor, disturbing the uterus as little as possible. The convalescence was rapid and uneventful. The pregnancy was not disturbed. From a thorough search of literature dealing with the subject he believes the following deductions to be justifiable:

I. Solid neoplasms of the ovary complicating pregnancy are exceedingly rare.

II. The diagnosis of this rare combination of a physiological and pathological process may be very difficult. In certain cases much help can be obtained from recto-abdominal palpation under narcosis, using Kelly's method to gently produce artificial descensus of the uterus. The physical examination, with the signs of pregnancy, and those which belong more particularly to solid ovarian growths, will generally enable us to make at least a probable diagnosis, and one sufficient to warrant an exploratory section.

III. The prognosis in cases of solid growths of the ovary complicating pregnancy is much worse, both for mother and child, than in those of cystic neoplasms of these organs. This is to be explained by the fact that the former are usually smaller and remain in the true pelvis and obstruct the parturient canal, while the latter, owing to their bulk and consistence, rise above the pelvis, and the dystocia, if produced at all, is of a less serious nature.

Abdominal section and extirpation of solid tumors during the early months of pregnancy produce equally good results, so far as the life of the fetus is concerned, as in the case of cysts; the ultimate result in the case of the mother depending, of course, on the malignant or benignant nature of the new growth.

IV. In the management of these cases we have seen that if the extirpation is undertaken during the elective period of gestation (second to fourth month), the maternal mortality was but 5 per cent, due to hemorrhage, shock, sepsis, and other causes; whereas the fetal mortality due to abortion is only 20 to 22 per cent, as compared with 40 per cent for the former and 80 per cent for the latter when these cases are left to unaided Nature.

The general rule, then, should be to operate on all cases between the second and fourth months of gravidity. It would be hard to find a stronger argument in favor of the elective operation for extirpation of these ovarian neoplasms than is furnished by a comparison of the statistics of the best authorities.

V. The compulsory operation (during the latter half of gestation, during labor or the puerperium) will rarely be required. One, then, should be guided by the suggestions of Hohl,

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preference being given to the procedures in the order above mentioned.

Ovarian Cysts.—S. Keith [25] reports the case of a woman with an ovarian cyst whose skin was markedly bronzed.

G. E. Abbott [26] believes that the heart failure after an operation on an enormous ovarian cyst is not due to the removal of pericardial pressure, but to the sudden reduction in the endocardial tension. He urges that in very large cysts the fluid be first removed by aspiration, and the heart be allowed to regain the mastery of the circulation before the sac is removed.

Ectopic Gestation.—R. Worrall [27] reports four cases of ectopic gestation. In one he operated twice in seven months for this trouble. In a second case he removed an unruptured tube containing a fetus of about a month. In a third case he operated for a ruptured tube. The fourth case he reports was one of tubal mole. All the cases made good recoveries.

In all the acute cases that A. W. M. Robson [28] has seen the symptoms have been pathognomonic. These were a sudden pelvic pain followed by faintness of varying degrees, even to extreme collapse; the history of one or perhaps two missed periods; and usually the appearance of a slight metrorrhagia, with, at times, the passing of decidual membrane. On pelvic examination the uterus was usually found tilted over to the normal side, and a soft, doughy swelling could be felt at the site of disease. He draws special attention to the following symptoms: 1. Superficial dulness on percussion over the pubes and in either flank, which on deeper percussion gives a resonant note. 2. A thrill in the same regions on gentle flicking with the finger-nail, though no ordinary signs of fluctuation can be felt. 3. On turning the patient over the dulness in the flank thus uppermost persists for some time, but gradually disappears in a way which differs from any other fluid than blood in the peritoneal cavity. 4. In some cases the liver dulness disappears, apparently owing (*a*) to the liver having become diminished in size from loss of blood, and (*b*) to the bowels having been pushed up by the effusion of blood in the pelvis. 5. In nearly all cases there is dysmenorrhea for some time before the catastrophe. He urges operation in every case, even where the patient has partly recovered from the first hemorrhage.

Escharotics in the Treatment of Uterine Cervical Cancer.—H. Snow [29] states that he has found potassa fusa to be an ideal caustic in malignant diseases of the uterus. He reports six cases where this caustic was used with very good results. Papilloma uteri he believes may be advantageously treated by crystallized iron perchloride as a prelude to radical extirpation.

Cancer of the Uterus.—T. G. Baldwin [30] states that the one sign of malignant disease of the uterus which should always be investigated, and especially so when it occurs at or near menopause, is hemorrhage. In all cases in which the menstrual period becomes prolonged, the flow more profuse, or the

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interval shortened, he believes in a most rigid examination, no matter what the condition or age of the patient is.

Uterine Myomata.—For clinical purposes J. Bland Sutton [11] divides myomata into two groups: 1. Myomata of the body. 2. Cervix myomata. Myomata of the body of the uterus may be either intramural, submucous, or subserous. Each of these varieties may occur singly; very frequently subserous, intramural, and submucous coexist in the same uterus. *Intramural* myomata in their early stages resemble knots in a piece of wood, and on section often present a peculiar and characteristic whorled appearance. In many instances the centre of the vortex is occupied by blood vessels. *Submucous* myomata project into the cavity of the uterus and lead to great thickening of its wall. Such tumors may remain sessile, but often tend to become stalked. Frequently the stalk lengthens enough to allow the tumor to be extruded from the uterus into and even beyond the vagina. When this occurs the pedicle of the myoma becomes gripped at the mouth of the uterus and this interferes with the circulation of the tumor, causing it to become edematous and finally septic (gangrenous). *Subserous* myomata—A single-stalked myoma may grow from the uterus and attain large size, but, as a rule, those which have thin and long stalks remain sessile. A solitary pedunculated subserous myoma is rarer than a solitary stalked submucous myoma. The narrower the stalk in proportion to the size of the tumor, the greater is its mobility and liability to axial rotation. Cervix myomata he divides into intracervical and subserous. The intracervical on cross-section presents a characteristic elliptical outline, the expanded walls of the cervix extending like a thin capsule around it. The subserous variety of cervix myoma often attains large proportions and pushes the uterus high above the pelvis; it may extend into one or both mesometria. Such tumors are usually elliptical on section, with an irregular and even tuberose exterior. Uterine myomata differ much in texture; some are as hard as cartilage, others as soft and succulent as an orange; between these extremes every degree of hardness or softness occurs. Hard tumors are yellowish-white on section; soft specimens approach the normal color of the uterus. As a rule, soft myomata grow rapidly and are very vascular; the softest tumors are those which have undergone secondary changes (myxomatous degeneration). It is by no means uncommon to find a uterus beset with many myomata, some of which are very hard; one or more may be calcified, others are as soft as the uterine wall, whilst one or more may be diffluent in the centre, and perhaps the biggest one among them is gangrenous.

Sutton [11] states that myomata arise in the uterus during the menstrual period of a woman's life. Their occurrence before puberty is unknown, and they are rarely recognized before the twenty-fifth year. After the twenty-fifth year they increase in frequency, which attains its maximum between the thirty-

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fifth and forty-fifth years. Myoma growing slowly before menopause will occasionally suddenly increase rapidly after this event. He gives the modes in which uterine myomata imperil life as follows:

Hemorrhage.—This is the commonest of all the inconveniences which myomata cause, but it is confined to those which implicate the endometrium. The bleeding occurs under two conditions; most commonly it takes the form of excessive loss at the normal menstrual periods (menorrhagia). The most serious hemorrhages are associated with septic myomata. It is a fact of some importance that a small submucous myoma will induce such profuse bleedings at the menstrual period as to place life in imminent peril, whilst a large interstitial myoma, even though it project into the uterine cavity, scarcely influences the loss. When a woman with a myoma bleeds excessively between as well as at the normal menstrual periods, it often indicates that the tumor has become septic, and this explains the almost continuous bleeding associated with a partially extruded and septic polypus.

Septic Infection.—This is perhaps the most serious complication of a myoma, and even when it does not cause death is always attended with dangerous consequences. Infection of a myoma may arise in a variety of ways—*e.g.*, the extrusion of a submucous myoma into the vagina exposes it to injury, and micro-organisms gain access to the tumor through abrasions in its capsule. Infection may be due to injury from the uterine sound or dirty dilators, or septic changes supervening on labor or miscarriage; occasionally it is due to intestinal gases when bowel adheres to the tumor, and it sometimes follows oöphorectomy. An infected myoma is a soft, dark-colored, stinking mass, which bleeds freely when touched. In the early stages of the infection it appears on section edematous and exhales a sickly odor. When a large myoma becomes septic it gives rise to severe constitutional disturbance (septicemia), like gangrene of other organs, and will, unless promptly removed, inevitably destroy life. Small myomata when septic, though they give rise to serious trouble, do not so urgently threaten life, but they work great mischief, for the infection extends from the tumor to the adjacent endometrium, and in due course involves the tubal mucous membrane, which in mild cases ultimately leads to the occlusion of the abdominal ostium of one or both tubes. This may be followed by pyosalpinx. In very acute (fulminating) cases the septic material infects the peritoneum.

Impaction.—A uterine myoma is said to be impacted when it fits the true pelvis so tightly that the tumor cannot rise upward into the belly. When a myoma becomes incarcerated the pressure it exerts on the rectum and urethra interferes with defecation and micturition. The most dangerous variety of impaction is that complicating cervical myomata. It is an important fact to remember that *when a woman between 35*

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and 45 seeks relief because she suffers from retention of urine for a few days preceding each menstrual period, it is almost a certainty that she has a myoma in her uterus.

Axial rotation may occur when a subserous myoma has a long and slender stalk; this movement may cause very great pain. Some small calcified myomata may be so twisted as to become detached.

Intestinal obstruction may occur in three ways, thus: a pedunculated subserous myoma may entangle a loop of small intestines; a very large myoma rising high in the abdomen may rest on the pelvic brim in such a way as to obstruct the sigmoid flexure; impaction may lead to constipation and chronic obstruction.

Suppurative Conditions of the Female Pelvis.—Y. Wardlow[26] believes that cases of pus sac of recent formation, and more especially those of a gonorrheal origin, may be treated by the vaginal incision and drainage with better prospects of success than by any other method. Free irrigation is useless and even dangerous. That by this method useful organs are preserved. That when, either as a result of long standing or from some form of traumatism at the time of the infection, the lymphatics and neighboring tissues have been invaded and destroyed, the lesion is too complicated, as a rule, to be reached by vaginal drainage, and recourse must be had to complete excision of the diseased parts. That the vagina is the route of preference for the treatment of all suppurative conditions, preserving as it does the barriers which Nature has created in the form of adhesions, and may be used with less danger of shock to the patient than the abdominal incision.

Vaginal Hysterectomy.—Macnaughton-Jones[28] removed a carcinomatous uterus and a fibroid about the size of a fetal head through the vagina. The vulvar orifice was very small, and the perineum had to be divided bilaterally in order to gain room. The uterus was very difficult on account of its adhesions and crumbling nature. The fibroid was compressed by claw forceps and then removed.

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DISEASES OF CHILDREN.

Adenoid Vegetations.—Regarding the etiology of these growths as found in the naso-pharyngeal cavities, M. C. O'Toole [1] states that he has invariably questioned mothers having children with adenoids, and has in every instance found that they have been affected with abnormal uterine or vaginal secretions at the time of the birth of the child so affected. From these observations the author has become convinced that acute suppurative inflammation of the middle ear in infants is, in most cases, the result of contact with gonococci-bearing maternal secretions during parturition, and that catarrhal secretions under like conditions are responsible for the existence of abnormal lymphatic follicles and adenoid vegetations. Charles J. Proben [2] advocates the use of chloroform anesthesia, so that plenty of time may be allowed to thoroughly clean out the fossa, first with the curette and then with the finger-nail. With the patient in Rose's position there is no danger of blood finding its way into the larynx.

Affections of the Urinary Apparatus in Children.—This subject is fully discussed by John H. Morgan [3] in the course of the Lettsomian lectures, under the following heads:

Congenital Abnormalities.—A recognized variation from the normal is found when the two organs are united either by a fibrous band or renal tissue, constituting the horseshoe kidney. The author has not met with an instance where, in the case of a child, it has been in itself the source of disease or of difficulty in the diagnosis of other affections. The kidney may retain more or less its lobulated fetal form in adult life without impairment of efficiency. The absence of one kidney and a corresponding hypertrophy of the other is a possible condition. The left is most frequently found to be defective. In congenital malposition the abnormality is in almost every case confined to one kidney, and the left is more commonly affected than the right.

Congenital Hydronephrosis.—The ureters show frequent aberrations from the normal type, but it is with regard to their causative relations to congenital hydronephrosis that these abnormalities are of special interest. It has been suggested that dilatation of the ureters and pelves may be the result of frequency of micturition, which, by exciting frequent contraction of the walls of the bladder and frequent closure of the vesical orifices of the ureters, owing to the anatomical arrangement whereby the ureters traverse the parietes of the bladder, thus occasion frequent resistance to the outflow of urine from the ureters. Cases are on record where the obstruction was due to the minuteness of the opening of the ureter or to a valve-like opening. If the condition affects both kidneys death usually occurs at a very early period. If, on the other hand, it be unilateral, due to a permanent obstruction of the ureter, there may be no symptoms and life may be prolonged to its natural term. When, however, the cause is intermittent a tumor is

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produced which requires to be differentiated from other similar swellings. If the dilatation becomes sufficient to form a tumor, which it may do at any time between the third and eleventh year, or even later, the necessity for surgical interference will arise, partly as a means for diagnosing the exact nature of the swelling, partly to relieve the patient of the inconvenience and pain from pressure.

Injuries of the Kidneys.—Children are liable to injuries from crushes or from the passage of wheels over the abdomen, which produce lesions of the kidney or ureter or the tissues which envelop them. In the latter case there may be nothing but a circumscribed collection of effused blood, which may be absorbed or may become surrounded by lymph in which it is encapsulated, and from changes of the constituents a cyst is formed. Or, again, the effusion may break down and, forming an abscess, give rise to all the constitutional effects of suppuration and ultimately point in the ilio-costal region. But this perirenal extravasation is often followed, at a period of from two weeks to two months, by a swelling containing more or less clear fluid with some of the constituents of the urine.

Perinephritis.—Apart from traumatic cases, perinephritis and perirenal abscess are very rare in children.

Hematuria.—In remarking upon this condition the author mentions what has been named Winckel's disease, in which cyanosis, jaundice, and hemoglobinuria attacks new-born children on or about the fourth day and causes death in forty-eight hours. This has not been observed in England, but paroxysmal hematuria or hemoglobinuria has been fairly often detected.

Tuberculosis.—Aside from tuberculosis of the kidney as a local manifestation of the general disease, chronic localized tuberculosis of the kidney is by no means frequent in children, rarely occurring under 11 years of age. The pathological history of the affection is the same as that of the disease in other organs.

Tumors.—Tumors of the kidney in childhood are almost without exception malignant, and the great majority are of the nature of sarcomata, though a few bear affinities to the adenomata and in rare instances show pigmentation. They are by far the most frequent of all malignant tumors occurring in the abdomen in childhood. Their growth is very rapid. The hematuria produced is abundant, but intermittent. The results of operation are very discouraging.

Calculus.—A calculus may be formed during intrauterine life, but it is to the later manifestations of lithuria that attention is more seriously called, the latter being a direct result of injudicious feeding. The explanation of the deposit lies in the small proportion in which the alkaline phosphates, the presumed solvent of uric acid, exist in the urine of infants. Stone may be latent in the kidney of a child and afford no evidence of its presence beyond pyuria. There is one symptom of calculus vesicæ in children to which full weight is hardly given in text books—that is, the rough and almost gritty condition

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which the surface of the bladder presents to the sound. This is constantly found to exist when no stone is present and when not even phosphatic concretion can be extracted. The author believes this is caused by the extreme acidity of the urine exciting a spasmodic contraction of the muscular fasciculi of the bladder and throwing them into ridges and folds against which the point of the sound impinges. In regard to operation for stone the author is inclined to the following opinions: 1. That in cases of boys and girls, stones of moderate size should be dealt with by litholopaxy. 2. That stones composed of oxalate of lime, or of such size as not to be readily grasped between the blades of a lithotribe, should be removed by the lateral operation in the case of boys. 3. That the suprapubic operation should be reserved for stones of very large size or inconvenient shape in boys or girls, or cases of calculus embedded in a saccule of the bladder or impacted in the mouth of a ureter.

Ammonia Salts in the Organism of Nurslings with Gastro-intestinal Diseases.—Keller [4] treated children ill with gastro-intestinal disturbances with ammonium carbonate, and determined the total nitrogen, the urea, and the ammonia in the urine on the day preceding and on the one following the use of the drug. His results lead him to the conclusion that these little patients have not lost the power of converting ammonia salts into urea, and that the increased amount of ammonia present in the urine in gastro-intestinal disturbances is due to an increase in the production of acid metabolic products.

Anginas, White Saprophytic, of Dyspeptics.—This is a name which M. Gaston [5] gives to a form of angina in which there is a white membrane, but in which, instead of the Löffler bacillus, we find the short bacilli *en navette* described by Barbier. This variety is usually preceded by rhino-pharyngitis or by long-standing gastro-intestinal dyspepsia. The antidiphtheritic serum is of no value in these cases. They yield to treatment by mentholated or borated vaseline in the nose, combined with intestinal antisepsis by means of salol, betol, naphthol, and laxatives. The affection is probably contagious, and it is therefore well to isolate the patient.

Angular Deformity of the Spine, the Immediate Correction of.—J. Jackson Clarke [6] reports a case in which this procedure was resorted to without causing much disturbance to the patient. When the retaining apparatus was removed after six weeks' time, most of the deformity recurred. In fact, neither the improvement in shape nor the degree of repair is greater than the author would have expected from careful general treatment combined with the use of a Chance's splint.

Arsenical Neuritis following the Treatment of Chorea with Fowler's Solution.—Edward B. Schreiner [7] states that paralysis from the therapeutic use of arsenic is a rare accident, and reports a case in point. It is probable that the patient, a girl of 10 years, did not receive less than two drachms nor

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more than three drachms from April 17 to June 5. The result was the presence of sensory disturbances, pain, tenderness and diminished tactile sensibility, motor palsy of general distribution and symmetrical character, and an early and pronounced loss of electrical irritability. It is possible that the toxic effect upon the nervous system was in this case due to defective elimination, as the patient never passed more than twenty ounces of urine in the twenty-four hours. Improvement followed appropriate treatment, but two months after discharge from the hospital the patient still had "steppage gait." She could walk fairly well, but in running or in ascending steps had a tendency to trip.

Astringents in the Treatment of Intestinal Diseases of Nurslings.—Kölzer [8] treated 15 cases of acute dyspeptic diarrhea and found that tannigen and tannalbin gave prompt results, while tribenzoylgallic acid proved far less valuable than the other two. A combination with small doses of calomel is very effective. In very chronic cases the remedies proved of no value. They must not be given for a longer period than eight days at one time.

Caries of the Mastoid Process, Operative Treatment of.—Panzer [9] reports 18 cases in children ranging between 6 months and 12 years of age, and calls attention to the fact that he operated in both acute and chronic cases, losing but two of the patients. In one of these measles and pneumonia caused death, in the other exhaustion was extreme before operation was attempted, but the relief of intense pain justified the procedure and at least made the child comfortable before death. The other 16 cases are well and the hearing greatly improved; even the young babies (6 and 8 months old) gave excellent results. The small bones in the ear become involved very early in the inflammatory process, and must be removed at the operation. The dura mater was laid bare in many cases, but only once was it covered with granulations; on curetting these away the dura beneath appeared smooth.

Dentition.—E. Ausset [10] observes that people in general are too apt to attribute more influence to dentition than it really possesses, and that, on the other hand, many physicians consider it so absolutely a physiological occurrence as to have no effect whatsoever in the causation of diseases or disorders. The author does not approve of either of these views. The accidents due to dentition are both local and general. The physiological redness and swelling incidental to the first stage of dentition may extend to parts of the gum not involved in the pushing through of a tooth; in this case there will be excessive pain, the child cries continuously, does not even attempt to suck, and there is much salivation. The lips, cheeks, and gums of the infant should be frequently washed with a solution of boric acid or a weak solution of sodium hypochlorite to prevent the development of the micro-organisms of thrush or oidium albicans which flourish in the acid medium produced by the condition. Moreover, pieces of absorbent cotton impregnated

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with a solution of marshmallow or of honey, or a collutory of sodium borate, should frequently and gently be pressed upon the gum. Opium and all manufactured syrups are to be avoided; so are ivory, coral, glass, or any hard substances such as are usually given to infants to bite. In their stead we may give a licorice or marshmallow stick, which by use will soften and even form a soothing application. The author totally disapproves of scarification and cutting the gum, because it is a useless procedure and because the small wound very quickly cicatrizes and leaves a hardened tissue which is difficult for the tooth to penetrate; it likewise forms a doorway for the entrance of microorganisms. Should the inflammation of the gum be severe it may extend to the mucosa of the cheeks and lips, causing a true stomatitis. The proper treatment for this condition consists of antiseptic washes and applications of a collutory of borax. A little lime water may also be given to counteract the acidity present. In these cases of stomatitis it is especially important to avoid lancing the gums, for the reason that there would be a risk of converting it into an ulcerative stomatitis. The *general* effects of dentition are reflex phenomena. The most frequent are digestive disturbances, which may be temporary and cause merely a loss of weight and lack of appetite, or severe diarrhea may be caused. This may be benign, or there may be a serious condition accompanied by fever and by vomiting. The nervous system suffers next in frequency to the digestive apparatus, and we see even good children becoming irritable, sleepless, restless, crying incessantly, and finally falling into convulsions. These are rarely dangerous. Dentition has been known to cause cerebral congestion, which may even simulate tuberculous meningitis.

A dry, nervous, and sometimes croupy cough often accompanies dentition, and in the sickly and rachitic there may be spasm of the glottis and laryngismus stridulus. In some infants the appearance of each tooth is accompanied by a bronchial catarrh. None of these symptoms due to dentition have any special characteristic serving to distinguish them from symptoms otherwise caused, so that the diagnosis is often difficult. A few rules will, however, be of assistance. The first thing to be done is to ascertain the previous health of the child; for, nine times out of ten, if a healthy child, hygienically brought up, is suddenly affected by any of the above-mentioned accidents, we may affirm that they are due to dentition. Reflex disorders due to teething begin abruptly and disappear as suddenly as they came. They are not in themselves true diseases, but they may predispose to real affections. Dentition cannot create tuberculous meningitis, but in the case of a child predisposed by heredity and by previous localizations of tuberculosis, as abscess of ganglia, osteitis, etc., the congestion of the meninges induced by dentition might create a *locus minoris resistentiæ* wherein the bacilli of tuberculosis would find a suitable environment for its development. This, according to the author, is the rôle played by dentition in the production of disease. As to treat-

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ment, a combination of the bromides of sodium and potassium in small doses (25 to 30 centigrammes—4 to 5 grains—a day) may be used to calm an over-excited nervous system. Bromide of sodium alone should be used when diarrhea is present, the potassium being too irritating to the digestive tract. Tepid baths are useful. A milk diet is imperative. Opium is to be avoided unless it is unmistakably indicated.

Dermoid Cyst of the Mouth.—Von Verebély [9] reports two cases, one of which affected a boy of 4 years, who experienced difficulty in speaking owing to a tumor on one side of the tongue which had increased steadily since infancy. Operation removed the cystic growth and the child got well. The second case was in a 6-year-old boy, and the operation was performed with the aid of O'Dwyer's apparatus for forced artificial respiration. The dermoid cyst on the left side of the tongue was removed successfully and the boy recovered completely.

Difficult Defecation in Infants.—The summary of an article by Thomas C. Martin [10] is as follows: 1. The muscular development of the adult rectum and lower sigmoid is apparent in fresh specimens. A deficient muscularity is observed in infant specimens. 2. The peritoneum of these parts in the adult is observed to be, relatively, very considerably shorter than that in the infant. 3. The rectal valves appear to bear the same proportion to the gut in both adult and infant, but when we remember the difference in muscular development in the two the disproportionate resistance of the valve in the infant rectum is obvious. 4. The anal expansibility is adequate in the male and is seen to be deficient in the infant.

Diphtheria.—F. Gordon Morrill [11] discusses the duration of the immunity from diphtheria conferred by a single injection of antitoxin, and the dosage. From actual experience he believes we are justified in believing: (1) That immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred for at least ten days by the injection of 100 to 250 units of the serum, provided it is given twenty-four hours previous to actual infection; (2) that a larger dose (250 units for a child of 2 years, up to 500 units for one of 8 or over) will confer safety for three weeks; (3) that no harm will result from the treatment in a vast majority of cases of sick children, and probably in no case of a healthy child, provided the serum used is up to the present standard of purity.

G. Monteux [12] contributes observations upon the physiological and clinical effects of the antidiphtheritic serum made upon eight patients. I. In all of them an unusual symptom was noted—namely, sweating. It was constant and abundant, situated principally in the head, but was sometimes general. It made its appearance from one to three and a half hours after the injection, lasted from seven to thirteen hours, and sometimes reappeared on the evening of the day following the injection. It was usually, but not necessarily, accompanied by a rise of temperature. The serum itself and not the antitoxin was probably the cause of this symptom, which corresponded

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to the eruptions which sometimes occur after the administration of drugs. II. *Temperature.*—The injections of serum were not always followed by a rise in temperature Petit noted a rise in only 7 out of 65 cases. III. *Pulse beat.*—This was usually increased in frequency and continued rapid even after the temperature was lowered. It never went beyond 160. In one case it was lessened in frequency. IV. *Urine.*—This was diminished for several hours following the injection of the serum, and polyuria usually followed later. There was no albuminuria, even in the case of two patients in whom the diphtheria was associated with scarlet fever. In one case there was increase of urea. V. *General condition.*—The favorable influence of the serum upon the system was constant, as it was also upon the local condition. A few hours later the false membranes swelled and exudates appeared, which had been absent before the injection. By the second day the surfaces were usually clean. In croup there was immediate disappearance of dyspnea. Neither intubation nor laparatomy was performed. VI. One of the cases was treated with the serum twice, with one year intervening between the treatments. The preventive power of the serum is therefore limited, and it cannot be relied upon for the prophylaxis of diphtheria. VII. Erythema was observed in three of the cases. One of the scarlatina cases became delirious in the night following the injection and suffered from articular pain and stiffness during micturition. The author holds with Hutenil that one cannot be too careful in the matter of injecting serum in scarlet-fever patients, and lays down the following rules:

(*A*) Diphtheritic angina, without membranes, *no injection.*

(*B*) Membranous diphtheritic angina:

1. A circumscribed exudate; short or medium-sized bacilli. *Local antisepsis only.*
2. Numerous, invading exudates with long bacilli *Injection, if there is only a slight amount of albumin in the urine and if there is no anuria.*

(*C*) Croup. If there is not too much tirage, *await the result of a bacteriological examination, unless the patient lives too far away to be easily reached.*

If there is suffocation and much and continuous tirage, *inject at once.*

VIII. The dose employed was from ten to twenty cubic centimetres. Only one patient required a second dose. In a case of severe croup with incessant attacks of dyspnea, thirty cubic centimetres at one dose caused a cessation of the trouble.

G. Variot[13] protests against the indiscriminate use of the antidiphtheritic serum. It is a specific remedy for diphtheria, not a panacea for all ills, as many practitioners, carried away by published theories, appear to think. This tendency to generalize in regard to new medicaments is not a new thing; in the eighteenth century antimony and quinine were in turn the favorites of physicians and patients; bleeding was as much honored as it is at present neglected; and it is only a few years since we witnessed the abuse of antipyrin. Scientific practitioners should set their faces against empirical methods in the

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administration of medicines. The indications for the injecting of antidiphtheritic serum have been clearly defined by clinicians who have made a study of its action. It should be reserved for undoubted cases of diphtheria. Variot, basing his opinion upon observations made upon more than 3,000 cases, gives his unqualified approval to the use of the serum in appropriate cases, but for that very reason is opposed to having discredit thrown upon it by its misuse.

Epidemic Cerebro-spinal Meningitis.—W. T. Councilman and F. B. Mallory[14] have an exhaustive article upon the pathology of this disease. They believe that there is no doubt that acute meningitis may be produced by the entrance into the meninges of a number of infectious organisms. The organisms enter the meninges either by the formation of a communication between the meninges and some cavity where they may be accidentally present (as in the middle ear or nose), or by the extension to the meninges of an infectious process in the vicinity (mastoiditis, erysipelas), or they are brought to the meninges by the blood from some other focus in the body (pneumonia, endocarditis). The authors are of opinion that all infections of the meninges other than the diplococcus intracellularis are fatal, but this can only be determined by microscopical and bacteriological examination of the exudation obtained during life by spinal puncture.

Epithelioma (Rodent Ulcer).—M. B. Hartzell[15] reports a case in a boy of 14. The clinical diagnosis was fully confirmed by microscopical examination. The earliest period at which epithelioma has been reported was in the case of a child 5 years of age. A very large proportion of the small number of cases of epithelioma occurring in early life belong to the variety known as rodent ulcer.

Extirpation of Persistent Omphalo-mesenteric Duct.—Körte[16] reports the case of a baby, 1¼ years old, who had a persistent Meckel's diverticulum through which a large mass of intestine prolapsed when the child cried. Operation was successfully performed and cure resulted in two weeks. Attention is called to the danger of this condition, owing to the fact that the prolapsed intestine grows constantly larger in amount and that fatal obstruction may result at any time. The operation is relatively easy and without danger.

Forcible Correction of the Deformity in Pott's Disease.—Robert W. Lovett[17] gives a review of the recent literature of this subject. The objections which occur on theoretical and practical grounds are: 1. Pott's disease is a tuberculosis of bone, of the bodies of the vertebræ, and the deformity is secondary and is an incident. It has been regarded as in a measure conservative and as Nature's preliminary to arresting the disease. Were the treatment proposed the eradication of the disease, it would place it on a different plane; but the measure deals only with a symptom and a result which is of itself distressing and sometimes disabling, but which is, on the whole, fairly well controlled by early and efficient treatment. Other

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things being equal, it is, of course, most desirable to improve or obliterate the deformity, but the essential of any rational treatment is first to cure the disease. 2. The question of the occurrence of bony repair to fill in the gap caused by the tearing apart of the bodies of the vertebræ is, of course, an essential one. If there is to be no bony repair the operation is useless. It is asserted that in Pott's disease bony repair occurs, not in the bodies of the vertebral column, but at the sides and back. The reproductions of radiographs, taken with the purpose of proving that bony repair does take place in the gap, are far from satisfactory to the author, who believes that this question must be regarded for the present as wholly *sub judice*. The operation seems to be unattended by risk to life.

Gastro-enteritis with Acetonuria in Children.—The conclusions reached by P. Vergely[16] are the following: 1. The presence of acetone, of diacetic acid, and of oxybutyric acid β in the urine of children and of young persons suffering from digestive disturbances, is frequent. 2. These digestive disturbances have a special character, due to the formation of the above-mentioned substances in the digestive tract. 3. The presence of acetone, of oxybutyric acid, and of diacetic acid in young subjects is favorable to prognosis, provided that there be no lesion of kidneys, liver, or lungs, or of the nervous system. 4. These substances may possibly be found in the digestive tract from the action of micro-organisms upon the albuminous and saccharine matters taken in the food; the entrance of albuminoids and fats into the circulation of poorly-nourished persons (*inanities*) may, by autophagia, be the starting point for the formation of acetonuric products. 5. Meat should be prohibited, and carbohydrates form the diet during the acute period. Purgatives and emetics should be administered, and in non-diabetic subjects alkalies, glycerin, and the hyposulphite of soda be administered.

Hydrocephalus, Chronic, in Hereditary Syphilis.—Heller[17] details the case of a boy, 7½ years old, whom he has had under observation since his birth. He had symptoms of hereditary syphilis soon after birth, and at 6 months was decidedly hydrocephalic. Antisyphilitic treatment affected a cure, so that the boy remained well until the age of 7, when double interstitial keratitis developed, and also periosteal gummatous growths on the left tibia and humerus. Mixed treatment again brought about a complete cure.

Hysteria, Infantile.—An editorial[1] refers to the work of French neurologists in this domain within the last decade, and calls attention to the report and discussion which took place at the meeting of the Congress of French Alienists and Neurologists last August. In the first place, hereditary stigmata are of the greatest importance in the etiology, and the heredity may be direct or indirect. Charcot and Peugniez insist on the influence of heredity on infancy, which age is more like that of the ascendants than the adult age, and this is the reason why "similar" hysteria is frequent in children. Beside similar

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heredity should be placed the heredity of the entire neuropathic family, such as epilepsy, migraine, nervous excitability, etc. Certain diatheses may also enter into play. Mossé has called attention to the influence of gout on this nervous affection. He also asks the question whether hysterical hemoptysis have not for cause a tubercular heredity which would confer on the lungs a *locus minoris resistentiæ*, and, on account of this weak condition, be a point of fixation for the neurosis as well. With the same view in mind Grasset has studied the relationship of hysteria with scrofula and tuberculosis. Three principal causes may induce the symptoms of the neurosis to appear in the child, viz., education, emotions, and contagion. Education has a primordial influence; overwork, be it either mental or physical, frightful stories, late hours, etc., are among the most important. Terrien, who had practised in Vendée, often met with infantile hysteria, which he attributed in part to intermarriage between nervous subjects and alcoholics, and partly to the fantastic stories told to the children. The fear of examination is a factor that must not be forgotten; after this comes irritation. Aemmer reports the history of an epidemic which took 66 little girls in a school at Basle. Traumatism has an influence; so have the infectious diseases. Pitres considers it often extremely difficult to decide between epilepsy and hysteria. Among symptoms which are curable in the beginning when they are frankly hysterical we have stuttering and tics. Out of 23 children who stuttered, Pitres found 7 in whom the disturbance had come on after a violent emotion, usually fright, at about 7 or 8 years of age. Suggestion or other appropriate measures will often cure this hysterical stuttering as well as the *petits tics*, such as clonic shaking.

Immunization of Sick Children with Behring's Antitoxic Serum.—Slawyk[10] reports the fact that 500 children have been inoculated 874 times at intervals of three weeks, and no one has been attacked with diphtheria. He believes that three weeks is the minimum limit of protection afforded by the serum injections. No bad effects of any kind followed these injections. It has been noted in children's wards of the Charité Hospital in Berlin that when routine immunization stops, diphtheria cases develop; when the injections are begun once more, diphtheria ceases to appear.

Little's Disease.—P. Lebrun[11] believes that the disease is not necessarily progressive nor even stationary. In many cases the patients may become able to walk with ease, and this result is reached by what Marfan calls *methodical education of the lower limbs*. To this end the legs should first be made to undergo passive motions of flexion and extension; should fibrous retractions of the tendons form an obstacle to these movements, tenotomy should be performed. Massage should be associated with the passive motions. After operation for Little's disease, the author thinks that ten to twelve days of immobilization will be sufficient to assure cicatrization of the wounds and organization of the tendons, and that then movements should

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be initiated as soon as possible. "Movement," says Sayre, "is the condition of life to muscles and articulations."

Luetic Primary Lesion of the Eyelids, Case of.—Gazzow[11] reports the case of a baby 15 months old who had a primary sore at the inner canthus of the right eye, involving both lids. All the lymph nodes were enlarged, not tender. The infection could be traced directly to the father, who probably transmitted it to the baby by kissing him on the eyes. Later syphilitic angina developed, but no other positive signs; the general condition was fairly good except for repeated attacks of diarrhea. The ulcer was treated successfully with unguentum cinereum and an iodoform dressing. The literature is reviewed in detail.

Lumbar Puncture in Chronic Hydrocephalus.—Raczynski[12] has made 87 lumbar punctures in 26 children and has never seen any ill effects result. On the other hand, he believes that all idea of curing cases of chronic hydrocephalus by this means must be given up, and that the method is of value only in relieving certain symptoms in some cases.

Malignant Tumors of the Kidney in Children.—M. F. Brun[13] reports two cases, the first in a child of 2 years, upon whom he performed nephrectomy for sarcoma of the right kidney. The operation was successful, and the child made a good recovery, but died three months later from a return of the malignant neoplasm. The second case was a little girl of 4 years. An operation was attempted, but the tumor of the kidney was found to be so intimately adherent to the liver that nothing could be done, and the child died a month later. In both these cases the finding of the tumor preceded any symptoms, and this is indeed usually the case. Nephrectomy in children is a very grave operation. Guillet, out of 15 operations, reports 9 deaths; Chevalier, 19 out of 27; Fischer places the mortality at 40 per cent. Albarran, it is true, states that the mortality has greatly diminished in the past few years, but in statistics based upon 97 cases he still places the mortality at 30 per cent. Relapses also are frequent. In spite of this the author considers the operation justifiable as a last resource.

Multiple Papillomata of the Larynx.—T. C. Railton[14] reports two cases treated successfully by tracheotomy only. It would seem in these cases that the spontaneous atrophy of the papillomata depends upon the removal of all causes of irritation in breathing and more particularly in coughing. The more radical operation of thyrotomy or endolaryngeal extirpation has proved very unsatisfactory in children.

Multiple Suppurative Periostitis of the Phalanges caused by the Bacterium Coli Commune.—Meyer[15] reports the case of a baby boy, 10 months old, who presented eight abscesses on phalanges of both hands and both feet. These followed an attack of diphtheria and diarrhea. Upon incision the periosteum was found to be involved, and bacterium coli commune was obtained pure from the pus. The wounds all healed well. This is apparently the first reported case in which

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the colon bacillus has caused bone suppuration, and the infection from the intestinal tract is quite clear.

Nasal Cleft, Congenital, and its Operation.—Kredel[14] describes the case of a baby who presented a complete division of the nose into halves, with cleft upper lip, but normal palate and uvula. The nasal slit was filled up by a large, irregular-shaped, non-fluctuating tumor. Operation was done in two sittings and was well borne by the baby. The result was excellent. The tumor was found to be a teratoma.

Neurasthenia in children forms the topic of an editorial[15] in which the writer deplores the multiplicity of studies and occupations now considered necessary at an early age. Sports, too, instead of giving the needed relaxation, are entered into with a concentration and persistence which almost entirely destroys any such possibility. Small wonder is it that a child thus eager and thus spurred by parents, friends, and the rivalry of companions has attacks of fever running up to 104° and 105°, or has numberless attacks of coryza, catarrh, tonsillitis, and bronchitis, ending in permanent changes in the upper air passages. In a Boston gymnasium the pupils are trained in the exercise of resting flat on their backs on mattresses and wholly relaxing all muscular tension. A physician known to the writer requires his children, when they return from school and have had their simple mid-day meal, to go each to a room alone and lie down for about half an hour. Such rest would do much to cause a more natural development and give fewer cases of inability to finish school, eye-strain, "music-player's back," etc. As these children grow older their capacity for knowledge, having developed naturally, will be far more valuable. They will, too, have self-control and ability to say "no" to themselves when tempted to over-work or over-pleasure. The nervous system properly cared for does not easily give trouble. Dyspepsia, prostration, depression, exhaustion only come after long abuse and neglect often due to ignorance. Physicians can easily drop a word of warning or advice which will be of more value than medicine.

Otitis Media, Purulent.—Gorham Bacon[16] has an article upon this subject in which he discusses the complications and treatment. Among the causes are given cold, influenza, the exanthematous diseases, diphtheria, typhus and typhoid fever, bronchitis, cerebro-spinal meningitis, pneumonia, tuberculosis, the puerperal state, syphilis, sea-bathing, injuries to the auditory canal and drumhead from blows, falls, the improper use of instruments, the application of caustic solutions, the use of the nasal douche, and sniffing up of salt and water for nasal catarrh. Dentition and adenoid growths should also be mentioned. If the pain persists in spite of the application of a leech, or bulging of the drumhead occurs, a free incision of the drumhead should be made. When micro-organisms are present antiseptic solutions should be applied to the ear and to the naso-pharynx by means of an atomizer. The middle ear should be drained as thoroughly as possible, in addition to

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irrigation, by means of a strip of iodoform gauze pushed down to the drumhead and renewed as often as necessary. The author has reported two cases in which facial erysipelas was secondary to acute otitis media. In both patients the general health was impaired. If during the course of acute otitis media the temperature remains high after the drumhead has been incised and the mastoid cells opened, the possibility of a latent pneumonia or of some other complication, especially sinus thrombosis, should be considered. The author is of opinion that it is unnecessary to ligate the internal jugular vein whenever a thrombus is found there, if it is possible to establish a free flow of blood in each end of the divided sinus. The author has never seen any bad results from exploring the different parts of the brain for abscess, if the operation is carefully performed and under strictly aseptic conditions.

Ovariotomy in a Child.—D'Arcy Power [36] reports a successful case. The child was a little collapsed after the operation, but it soon rallied and made a perfectly uneventful recovery, being ready to leave the hospital within a fortnight after the operation. The operation was for the removal of a cystic ovary.

Pemphigus Neonatorum.—L. Emmett Holt [37] reports a case of this disease associated with a general infection by the staphylococcus pyogenes. The facts do not warrant the conclusion that all cases are due to hereditary syphilis. In the case reported there was no evidence of syphilis, either clinical or pathological, but the symptoms during life, postmortem findings, and the cultures all indicate a process of an acute general infection, of which the bullous eruption was only one of the manifestations.

Peptonuria in Some Infectious Diseases of Childhood.—Cattaneo [8] examined the urine for peptone in 25 children, their diseases being scarlet fever, diphtheria, measles, and erysipelas. Of 123 examinations made, 29 were positive. He found that peptone is regularly present after the injection of antitoxic serum, and that, while often present in various infectious diseases, it has no diagnostic or prognostic value, because it bears no relation to the stage or severity of the disease.

Pertussis, Therapy of.—Weinberger [21] used inhalations of the thermal water of Pistyan with excellent results in lessening the number and duration of the cough paroxysms. One hour's inhalation morning and afternoon was sufficient. The water is bottled and shipped to any part of the world.

Pneumonia.—Sir William Broadbent [38] gives a clinical lecture on a case of pneumonia with abortive crisis and premature resolution followed by suppuration of bronchial glands. The abscesses discharged into the bronchial tubes and the patient recovered.

Pseudo-paralysis, so-called, of Hereditary Syphilitic Infants.—Zappert [9] gives the results of a painstaking examination of the spinal cord and brachial plexus of an infant, syphilitic, who had had paralysis of both arms. In the cervical

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region a meningitis was present; it was fibrous in character, and seemed to date from fetal life; there was also degeneration of the posterior nerve roots in this region and of some of the fibres of the brachial plexus. The remaining portions of the cord and its membranes were not involved in the process. It would seem probable that some cases of so-called syphilitic pseudo-paralysis can be explained on the old assumption of Parrot that a painful bone lesion is the cause. But in other cases spinal-cord lesions will undoubtedly be found to account for the condition.

Retropharyngeal Abscess.—Melvin M. Franklin[18] reports a case in which ulceration into the left internal carotid artery occurred, followed by right-sided hemiplegia with aphasia and recovery.

Round Ulcer in Children.—A. Cade[19] reports a case of round ulcer of the stomach, with perforation, in an infant 2 months old. In newly-born and in nursing infants he says it is not unusual at the autopsy to find ulcerations upon the mucosa of the stomach, which, as a rule, are multiple, superficial, and small in size. Sometimes they are hemorrhagic ulcers, sometimes the small ulcerations of follicular gastritis, sometimes they are deeper and of greater extent, without, however, possessing the characteristics of round ulcer. The last-named is rare; still it may be met with, as shown by the reported case. The anatomical characteristics are the same as in the adult, and the chief complications are perforation of the peritoneum and hemorrhages. The ulcer may be situated in any portion of the stomach, but it is more frequent in the duodenum near Vater's ampulla. The theories in regard to its pathogenesis are many. Billard considered it due to follicular gastritis, Bohn to obliteration of the glandular ducts followed by their inflammation. Congestion of the blood vessels, due to respiratory disturbances, was thought by Silbermann to determine the formation of extravasations which, by action of the gastric juice, were transformed into ulcerations. Steiner and Buhl considered the primary lesion to be a fatty degeneration of the arterioles. The theory of embolism has been widely disseminated and believed in. Parrot holds that the ulcers are due to athrepsia; Grätzer, to some fetal disease. Many authorities admit that it may be of intrauterine origin. Syphilis, traumatism, hyperactivity of the gastric juice, hyperchlorhydria, but, above all, infection by certain microbes, have been held responsible for the disease, but the truth is that the matter is not as yet clearly understood.

Should Newly-born Infants be Bathed?—Schröder[20] studied this question by subjecting 150 newly-born babies to exactly the same routine treatment, except that he allowed 75 to be bathed as usual and ordered the other 75 to be washed only, thus keeping the umbilical dressing perfectly dry and untouched. The results showed that the bath does not diminish metabolism (as shown by the body weight), that the cord falls off a little earlier in the case of the bathed infants, and

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that there were more departures from the ideal in the healing of the umbilicus among the washed than among the bathed children, also more cases of rise of temperature. Finally, the author believes it to be a decided drawback to shorten the period of bathing infants, since this is never too prolonged any way among the poorer classes.

Tonsil and Adenoid Operations.—W. E. Casselberry[1] and F. Menge present a report of these operations under anesthesia by nitrous oxide and nitrous oxide and oxygen. It was found, after using from 10 to 25 per cent of oxygen with the nitrous oxide, that when this percentage was reduced to 5 per cent the patient was anesthetized in two minutes without much cyanosis or asphyxia, and that this mixture so lengthened the available anesthetic operating time that both tonsils and adenoids could be removed with one application of the gas, the complete operation occupying about one minute. The advantages are absence of danger, non-necessity for preparations, safety in the upright position, short duration of time, and freedom from after-effects.

Ulcerative Stomatitis, Bacteriology of.—Bernheim[4] and Pospischill examined 30 cases and found two forms of organisms present in all—namely, bacilli and spirochetæ in almost pure culture. In cases of ulcerative stomatitis complicating diphtheria and noma, these two bacterial forms were constantly present in addition to the specific organism of the disease—that is, they played a secondary part only. One case is reported in which an ulcerative stomatitis was accompanied by laryngeal stenosis, necessitating intubation, and recovery resulted. Diphtheria bacilli were never present, although repeated examinations for them were made.

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ITEM.

The meeting of the AMERICAN MEDICAL ASSOCIATION to be held at Denver, Col., on June 7 to 10. promises to be most successful. For special information on rates and hotels apply to Dr. Robert Levy, California Building, Denver, Col.

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THE AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. XXXVII. MAY, 1898. No. 5.

ORIGINAL COMMUNICATIONS.

THE COMPARATIVE VALUE OF CELIOHYSTEROTOMY AND CELIOHYSTERECTOMY IN CASES REQUIRING A CESAREAN SECTION.[1]

BY

BARTON COOKE HIRST, M.D.,
Philadelphia.

THE impression prevails among physicians in general, I think, that the classical conservative Cesarean section is a safer and better operation than the Porro-Cesarean section or the removal of the uterus after the extraction of the child. On entering practice and for some years afterward I entertained this view, believing that hysterectomy should only be performed when a woman had been very long in labor and many futile attempts at delivery had been made, probably infecting the endometrium; if there was uncontrollable hemorrhage from uterine atony; in case of such insuperable obstacles to drainage of lochia as a cancer of the cervix or a bony tumor of the pelvis; or in the presence of a uterine tumor which could

[1] Read before the Gynecological and Obstetrical Society of Baltimore, March 8, 1898.

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only be removed with the womb. Experience has compelled me to change my mind and to regard celiohysterectomy in a case requiring Cesarean section as the preferable operation, with a lower mortality and a greater freedom from complications, not only in the puerperium, but in the patient's future existence.

It is easy to understand the prejudice against the Porro operation and in favor of the classical Cesarean section, if one recalls the history of abdominal and uterine section for the termination of insuperably obstructed labors.

During the first two hundred and sixty-six years in which Cesarean section was practised upon the living woman the mortality of the operation had been so frightful that any expedient to avoid it was thought justifiable. Induction of abortion for a deformed pelvis, symphyseotomy, laparo-elytrotomy, each had its origin in a desire to escape the dangers of Cesarean section, while for the same reason much ingenuity was devoted to the improvement of the technique and to the invention of new instruments in the oldest obstetrical operation—embryotomy.

Finally, in the spring of 1876, Edward Porro performed the first successful celiohysterectomy for obstructed labor. This method of operating so obviously avoided the most fatal dangers of the older plan that it was widely adopted, and in the hands of such men as Carl Braun, Breisky, Leopold, Krassowsky, Frank, Fehling, Tait, and Porro himself, the mortality of Cesarean section was reduced to less than half of what it had been. Scarcely, however, were these results beginning to be appreciated by the medical world at large when Sänger proposed the close and accurate suturing of the uterine wound, including the peritoneal covering. Coincident almost with the adoption of this great improvement in the operation there began the aseptic era in abdominal surgery and the appreciation of the common-sense rule that Cesarean section, when required at all, should not be postponed until the patient is at the last gasp, after every other means of delivery had been tried in vain.

By a combination of the three factors—close suturing of the uterine wound, aseptic technique, and early operations—results were secured of such brilliancy as to throw the achievements of Porro and his followers completely into the shade. Meanwhile, however, Cesarean section by celiohysterectomy has undergone an evolution from which the attention of the profes-

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sion has been distracted by the glamor of the results following the Sänger operation. All gynecologists are familiar with the improvement in the technique of hysterectomy which has made the intraperitoneal treatment of the stump a much safer as well as a much more satisfactory method of operating than the extraperitoneal fixation of the cervix used to be. I had an opportunity of witnessing one of Dr. Baer's early operations by this method, and immediately adopted it in my next Cesarean section, which, it is my impression, was the first to be performed by this technique in America. In the past six years a number of Cesarean sections followed by hysterectomy have been performed by the best and most modern technique, ligating the arteries of the broad ligament, dropping the cervix and sewing over it a peritoneal flap. It is too soon, however, to collect statistics of this operation and to compare its results with those of celiohysterotomy. There are disadvantages, moreover, in the mere statistical study of any subject which the practical worker has often reason to appreciate. Without an array of figures, therefore, to support my statement, I can say from my own experience that not only does it add nothing to the danger of a Cesarean section to remove the womb, but, on the contrary, it diminishes the risk of the operation, for it eliminates the possibility of postpartum hemorrhage and lessens enormously the chance of puerperal infection. Certain complications in the puerperium also, as well as others at later periods in the individual's life, are surely avoided by a hysterectomy. These are: retention and decomposition of the lochial discharge, to which the undilated cervical canal does not give free vent if the operation is performed before labor; adhesions between the anterior uterine and abdominal walls; persistent fistulæ communicating with the uterine cavity; rupture of the uterus in subsequent pregnancies and labors; and the necessity for repeated Cesarean sections if the woman is allowed to become pregnant again.

If these incontrovertible facts are taken into consideration, it must be patent to any one that the statistics of the future, studied with discrimination, and taking into account the woman's life history, will demonstrate the superiority in results of the modern Porro operation over the conservative classical Cesarean section.

Whatever one's predilection may be in favor of hysterotomy or hysterectomy, he will admit that certain conditions in parturient women forbid a freedom of choice and compel the

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selection of the latter operation. It is interesting, therefore, to study the proportion of cases, if only in the light of one physician's experience, in which the Porro operation must be performed and a mere hysterotomy should not be relied upon.

My experience in Cesarean section now amounts to twenty operations, performed for the following indications: fibroid tumors, two; dermoid cysts impacted in pelvis, two; cancer of the cervix, one; partial atresia of vagina, one; contracted pelves, fourteen, of which there were one kyphotic pelvis one obliquely contracted and flat, one transversely contracted, eleven flat rachitic. Out of this number I should have been compelled to perform a Porro operation, no matter what my preference may have been, in eleven cases. In six of the operations for contracted pelvis the patient had been in labor many hours. Futile attempts at delivery had been made with forceps, and in two instances by craniotomy. The uterus was already infected, and the birth canal injured by slipping instruments or by the exercise of unjustifiable force in efforts at extraction. In one of the cases of impacted dermoids the woman had been in labor four days. The pelvic connective tissue and lower uterine segment were extraordinarily edematous, and the endometrium was almost black in color. In the two cases of fibroids attached to the lower uterine segment a hysterectomy was necessary to remove the tumors. In the cases of atresia of the vagina and of cancer of the cervix it was obviously improper to leave the womb behind.

If I may be permitted to judge by my own experience alone, it appears that a Porro operation will be absolutely required in practice a little more frequently than a Sänger, and it seems clear to me that this experience represents about what may be expected by any one who may be called upon to perform these operations. The cases have been distributed over a period of ten years. The women have come to me from all sorts of sources. One case only occurred among my own patients; the others have been referred to the various hospitals with which I have been connected, have been brought to me in emergencies in cabs and ambulances, have been specially referred to me from a distance, or I have seen them in their own homes at the request of their physicians.

It seems fair to assume, therefore, that any one in a position to receive such patients, any practitioner at a distance from expert surgical aid who may have such an operation thrust upon him at a moment's notice, should be prepared at least as

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often as not to perform a modern hysterectomy as a part of a Cesarean section.

As a matter of fact, among the twenty operations cited above, seventeen have been hysterectomies and only three hysterotomies, and I am convinced that this is about the numerical relation the two operations should bear to one another. Whether the womb should be removed in the great majority of cases, however, depends entirely upon one's viewpoint in regard to the justifiability of repeated pregnancies in women who can only be delivered by a Cesarean section. On this matter I am perfectly clear in my own mind. I could not reconcile it with my conscience to condemn a woman to the probability of a repeated Cesarean section unless she herself and her husband demanded it. This, however, is a remote contingency. In every case in which the matter has been submitted to the patient or her friends, I have been urgently requested to prevent the possibility of another conception. The arguments of those surgeons who advocate a different plan are, of course, entitled to and certainly receive from me respectful attention, but they are, in my judgment, inconclusive. I read, for example, in one debate upon the subject, the remarkable statement that a physician must take into account only the present condition; that it is nothing to him if his patient becomes pregnant in the future, even though a Cesarean section is again required. As if a physician or surgeon should ignore the future comfort, happiness, or safety of his patient, so long as he extricates her from a present difficulty. Luckily the general level of medical intelligence, conscientiousness, and foresight is higher than it would appear to be if such a statement really reflected professional opinion.

Another participator in this same debate claimed that there was no reason nowadays for avoiding a Cesarean section, as the mortality of repeated operations was scarcely greater than that of natural labor. And yet I happen to know that this operator's mortality in the operation has been thirty-three per cent. Even if it were possible for the most skilful and experienced operator, dealing with a patient in the most favorable condition and amid the best surroundings, to eliminate the dangers of Cesarean section, it would still be impossible to be certain that a woman would on the next occasion be so situated that she could command the best attention. Hence Cesarean section is and will remain a dangerous procedure with a considerable mortality. It has to-day, in this country,

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a death rate of about forty per cent, taking into account all the operations of which a record can be procured, and the statistics have not improved in recent years.

The history of a patient referred to me last autumn for a Cesarean section well illustrates, I think, the fate in store for many women who can only be delivered by uterine section. She had given birth to two or three children previously with the greatest difficulty, even after embryotomy, and her physician told me she could not, in his opinion, survive another such operation as he had been compelled to perform the last time. I found a rachitic pelvis, with a conjugate of about seven and three-quarter centimetres or a little less, and an overgrown child, the head of which, even at the seventh month, could not be pressed into the superior strait. The woman stated that her other children had all been overgrown at birth, none of them, she said, weighing less than twelve pounds. As she and her husband desired a living child, I recommended a Cesarean section at term. This recommendation was accepted by the family physician, the husband, and the wife, after careful consideration. The patient accordingly entered the University Maternity to await the date of the operation. Unfortunately she grew very homesick and begged me to allow her to return home, if only for a week, promising faithfully to return to the hospital in good time for the operation. I cautioned her against staying away long, pointing out to her the difficulties and dangers of her former labors, and warning her not to run the risk of falling in labor in the small town in which she lived, where she could not obtain the skilled attention that she needed, and whence she could not perhaps be transported to the city in time. She seemed to be impressed by what I said, and I had no doubt she would return. As it appeared later, however, she was not only homesick but frightened, and when she left the hospital she evidently determined not to come back. On her return home she failed to notify her physician, and deliberately kept him in ignorance of the fact that she was in labor till she had had hard pains for thirty-six hours. The os was then dilated, and her physician thought it too late to send her to the city. He was led to believe, moreover, that there was a chance for spontaneous delivery, as the head appeared to be descending the pelvic canal; but he was deceived, as many another has been, by a steadily increasing caput succedaneum and the shallow pelvis of rachitis. While he was awaiting further progress the woman ruptured her uterus and died with

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the child undelivered. Now, this woman had considerable intelligence; she had had a practical demonstration of the dangers of delivery by the natural passage in several dreadful experiences of inordinately delayed labors, prolonged anesthetizations, difficult embryotomies, and complicated convalescences; she had been impressively warned never to incur the risk of delivery by the vagina again; her physician and her husband had urged her to have the Cesarean operation performed and she had consented; yet she deliberately chose to accept the risks of another difficult labor, either because she thought the Cesarean section was unnecessary or was afraid to undergo it. What is to be expected, therefore, of the more ignorant hospital patient? She has a Cesarean section performed, say in her first pregnancy or labor. She recovers from the anesthetic and finds herself safely delivered without any difficulty to herself and with very little suffering afterward. She is told that she can never have a child in the natural way and must always be operated upon in subsequent labors. It is doubtful often if she believes it or whether she will remember the warning; or she may be so placed that it is impossible for her to secure the services of an expert; so that her next labor will find her not improbably in the slums under the care of a midwife, or of a physician not much better informed as to contracted pelves, and her life will very likely pay the forfeit.

Taking into account, therefore, the unavoidable though small mortality of Cesarean section under the most favorable circumstances; considering, moreover, the impossibility of always securing the best circumstances in many cases, it seems perfectly clear to me that it is unjustifiable to subject a woman with an insuperably obstructed pelvis to the dangers of subsequent pregnancies and of a repeated Cesarean section. Once this point is conceded it is unnecessary to argue further for a hysterectomy. No one can contrast in actual practice the greater facility and rapidity with which a Porro operation can be done, the entire freedom from many of the risks of the puerperium after the removal of the womb, the impossibility of many complications that are likely in the Sänger operation, without preferring the former to the latter operation.

One argument that has appealed to me more strongly than any other against hysterectomy, and that would influence me had I not found its answer in my own experience, is the disadvantage of the early artificial menopause, the symptoms of which are rather more annoying, I think, after a hysterectomy

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than they are after a simple oöphorectomy. But there is something in the function of lactation which seems to neutralize the effect of the removal of the sexual organs. I have been many times struck with the absence of the disagreeable phenomena in the woman who nurses her child after a Porro operation. Nor do these symptoms appear later, for by the time the child is weaned the system is adjusted to the absence of the uterus and ovaries, so that the woman experiences none of the troubles usually incidental to the artificial menopause.

In still another direction the consequences of puerperal hysterectomy differ apparently from those which follow the operation at other times. We have all, I dare say, had reason to deplore in some cases the contraction of the vagina and the entire loss of sexual feeling which are occasionally observed after a hysterectomy, say, for a fibroid tumor. It is always difficult to obtain information about these matters, but as far as I can learn there has not been such a result after any of my Porro operations.

1821 SPRUCE STREET.

THE SURGICAL TREATMENT OF CATARRHAL EROSION OF THE CERVIX IN THE NULLIPAROUS WOMAN.

BY

PAUL F. MUNDÉ, M.D.,

Professor of Gynecology at the New York Polyclinic and at Dartmouth College; Gynecologist to Mount Sinai Hospital.

(With plate.)

THE speedy and certain cure of chronic endometritis in the nulliparous woman by the sharp curette, whether followed by cauterization of the endometrium with a solution of chloride of zinc or with iodized phenol or not, is generally admitted. And especially rapid and sure is the recovery when the endometritis occurs as the result of a parturient laceration of the cervix, and the curetting is at once followed by the repair of the cervical lesion.

But there are a certain number of cases of endometritis in the nulliparous woman, and even in the virgin, in which mere curetting and cauterization do not suffice to effect a cure.

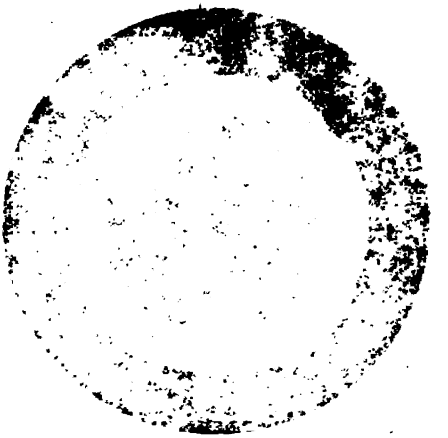
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Fig. I



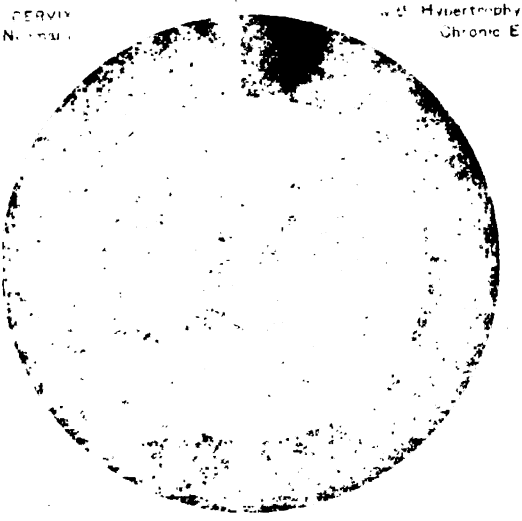
VIRGINAL CERVIX
(Average Nulli...)

Fig. II.



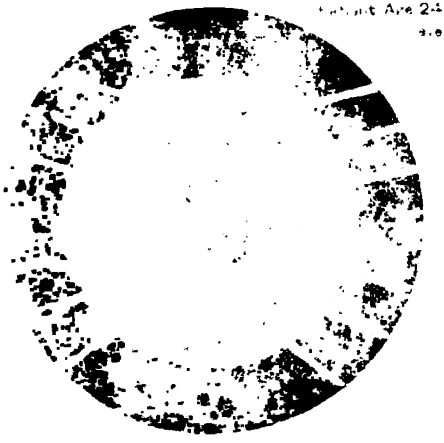
VIRGINAL CERVIX,
...t Hypertrophy and Ero... from
Chronic E...stitis.

Fig. III.



EROSION OF CERVIX
with Gaping Os simulating Lacerated Cervix
Patient Age 24. Married 5 Months
after Pregnancy.

Fig. IV



VIRGINAL CERVIX
...ed from Fig. II and Sutures Inserted

Fig. V



VIRGINAL CERVIX
Fig. IV with Sutures Inserted

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...ing in oophorectomy. But there is one ... of ... operation which seems to me ... the removal of the sexual organs. I have had many ... with the desire of the disagreeable phenomena ... who ... for child after ... Porro operation, ... appear later, for by the time the child ... the system is adjusted to the absence of the uterus ... that the woman experiences none of the troubles ... related to the artificial menopause ... direction the consequences of Porro are ... from those which follow the ... operations. We have all, I dare say, ... some cases the contraction of the vagina or ... sexual feeling which are occasionally ... sterectomy, say, for a fibroid tumor. ... obtain information about these matters ... I can tell them there has not been such a result ... Porro operations.

1891 S... P...

BY

PAUL F. MUNDÉ, M.D.

Professor of Gynæcology, ... New York Polyclinic; ... Visiting Surgeon to Mount Sinai Hospital

With plates.

THE speedy and ... cure of chronic endometritis in ... multiparous woman by the sharp curette, whether ... cauterization of the endometrium with a solution of ... zinc or with iodized phenol or not, is generally admitted ... especially rapid and sure is the recovery when the ... occurs as the result of ... curettement of the ... the curetting is at once followed by the repair of the ... lesion.

But there are a certain number of cases of endometritis ... the nulliparous woman, and even in the virgin, in which ... curetting and cauterization do not suffice to effect ...

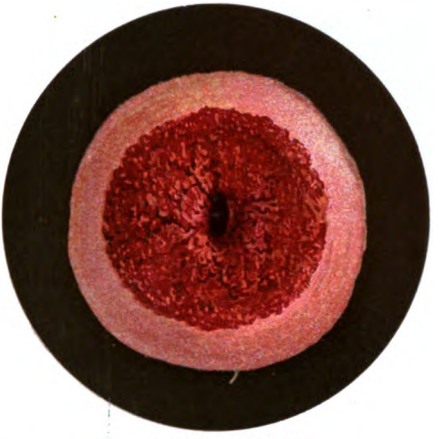
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Fig. I



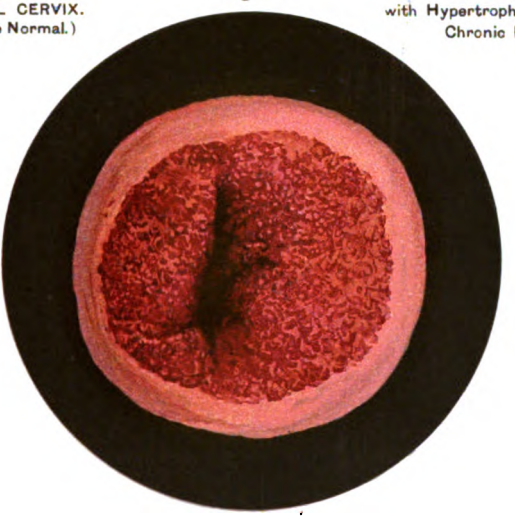
VIRGINAL CERVIX.
(Average Normal.)

Fig. II.



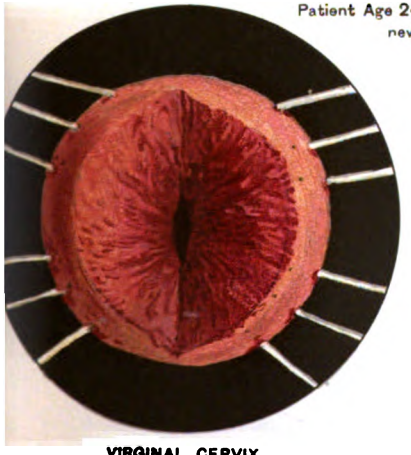
VIRGINAL CERVIX,
with Hypertrophy and Erosion from
Chronic Endometritis.

Fig. III.



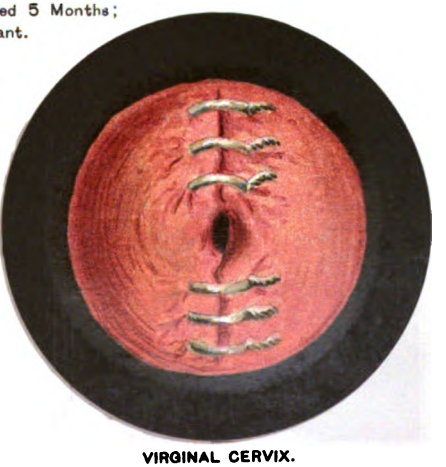
EROSION OF CERVIX,
with Gaping Os, Simulating Lacerated Cervix.
Patient Age 24. Married 5 Months;
never Pregnant.

Fig. IV.



VIRGINAL CERVIX.
ed Portion Excised (from Fig. II) and Sutures Inserted.

Fig. V.



VIRGINAL CERVIX.
Fig. IV, with Sutures Twisted.

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These are the cases in which the catarrhal inflammation of the endometrium has produced an hypertrophy of the glands and papillæ of the mucous lining of the cervical cavity sufficiently powerful to force apart the lips of the virgin os and even to evert the lips to a degree scarcely, if at all, distinguishable from the eversion produced by an actual parturient laceration of the cervix. Such a case is represented in Fig. 5.

This condition must not be mistaken for a congenital fissure of the cervix, which was first described by Fischl, of Prague, in 1883, and later by Penrose in 1896, or with the congenital erosion of the cervix reported by Leopold and Ahlfeld in 1872. Such a congenital fissure of the cervix with erosion I saw in my clinic at the College of Physicians and Surgeons of New York in the winter of 1881–1882, and mentioned the case in my work on "Minor Surgical Gynecology," on page 448, second edition, 1885.[1]

In cases where the lips of the external os are not forced apart by the exuberant glands of the cervical mucosa, the glands and papillæ of the vaginal covering of the cervix become disorganized by the chronic congestion and the epithelium covering the membrane adjoining the os becomes abraded, so that in well-marked cases a large part of the sphere of the cervix presents a bright red, raw, ulcerated appearance. This is the condition described in the older books as "granular and cystic degeneration of the cervix," and is not a disease by itself, but simply the result of an old chronic endometritis.

In my experience this condition is exceedingly common. I find in my office case book as many as seventeen cases in nulliparous married women during the past year and two in virgins. Of course virgins are much less likely to present themselves for examination than married women; but from my observation in past years I am confident that this condition is not at all uncommon even in young virgins. Indeed, I have seen several cases in virgins where the erosion and eversion of the lips of the os was quite as bad as is shown in Fig. 5. The usual appearance of the eroded lips is well illustrated by Fig. 2.

Let me state again most distinctly that I do not treat in this brief article of endometritis and erosions or hypertrophy of the

[1] See my article on "Virginal and Senile Endometritis," read before the American Gynecological Society in 1896 and published in the Transactions of the Society for that year and in the AMERICAN JOURNAL OF OBSTETRICS, vol. xxxiv., No. 1, 1896.

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cervix accompanied by laceration of the cervix as these conditions occur in the woman who has borne children. I refer exclusively to a similar lesion in the, obstetrically speaking, virgin uterus.

Now, I have already remarked that mere curetting and cauterization will not suffice to cure a pathological condition such as is depicted in Fig. 2 or 5. One can scrape away the diseased glands and papillæ with the sharp curette, but there will be left a raw surface surrounding the external os which will heal but slowly under the use of caustics, and in its place a cicatrix will remain, with probable contraction of the os. I have seen this frequently in cases treated by other physicians, especially in former years when the stick of nitrate of silver was so commonly used to cure erosions of the cervix. The resulting sterility was the cause of my being consulted.

It may take weeks and months for such an erosion to heal firmly, and a recurrence of the erosion is not impossible.

Years ago it occurred to me that the excision of the diseased tissue surrounding the external os, the limit of which is shown by the extent of the erosion on the cervix, and the union of the raw surfaces by sutures might offer an easy, rapid, and certain method of cure. Thus, in a paper on "The Indications for Hystero-trachelorrhaphy, or the Operation for Laceration of the Cervix Uteri," published in THE AMERICAN JOURNAL OF OBSTETRICS for January, 1879, there will be found on page 127 the following paragraph:

"We are all familiar with the difficulty experienced in curing large granular and follicular erosions of the cervix by caustics. Why not, then, hasten the cure by removing the diseased mucous membrane and uniting the healthy edges by sutures, as is done in Emmet's operation? I am confident much time could thus be saved."

I have never specially referred to this suggestion again in print, although I have often practised the method, particularly during the last ten years. But the cases have come under my observation so frequently of late that I have decided to follow the suggestion of my friend and former house surgeon at Mount Sinai Hospital, Dr. W. H. Luckett, to write up the matter, the more as he agreed to furnish me with the excellent illustrations which accompany this article.

The operation is exceedingly simple, and consists merely, after curetting the whole endometrium (the sharp curette in

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the cervical cavity), in excising with slightly curved sharp scissors or sharp, slender knife the entire diseased tissue to the depth of half an inch in a converging direction. The cervical cavity then has the shape of a funnel. The raw surfaces are then united by deep sutures, either silver wire (which I prefer, as it can be allowed to remain as long as desired and assures greater certainty of permanent union) or catgut, which will answer very well in minor cases.

Usually two or three sutures on either side will suffice (Figs. 3 and 4). As the whole tissue surrounding the external os is excised, it is necessary to prevent the complete closure of the cervical canal and os by passing a thin strip of iodoform gauze through it into the uterine cavity. This is changed every forty-eight hours for a week or ten days, when the patient may be allowed to leave her bed and can be discharged, returning after the next menstrual period to have the sutures removed, if they are wire, or to enable the surgeon to see whether the external os is normal in size and not contracting. It is well to advise such patients to call several times, at intervals of one or two weeks, for the passage of a large (Peaslee's) sound, in order to prevent the contraction which so readily follows plastic operations on the cervix uteri, especially those performed for congenital stenosis of the os and uterine canal. Even with this after-treatment the operation under anesthesia here described, being safe, short, painless in its after-effects, and, above all, effecting a rapid and sure cure, seems by far preferable to the tedious, uncertain, and quite as expensive routine treatment with curette and caustics.

Of course no cauterization of the endometrium by iodine or any other agent is employed when this plastic operation is performed.

To illustrate the effect of this operation on sterility, I will mention that a lady, married a year and sterile, upon whom I operated in this manner last September, wrote me from her home in Texas a month ago that she became pregnant soon after her return home and expected to come here to be confined at the usual time.

In the virgin this treatment need not necessarily involve the destruction of the hymen, which has usually been rendered pliant and elastic by the long-persisting catarrhal discharge and permits the introduction of a small Sims speculum, through which the denudation and suturing can be performed without

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injury to the hymen. But even if that organ were torn the damage would be of small consequence in comparison with the cure of the disease.

20 West Forty-fifth Street.

SUPRAPUBIC OPERATIONS.[1]

BY

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It is a pleasure to acknowledge the courtesy of the invitation of your Society, in response to which I am here. There is a peculiar enjoyment, honor, and professional profit in meeting with earnest men and sharing in their professional endeavors to advance the interest of medical and surgical science. We feel keenly that in a science and art so important and of such universal concern as that to which we have dedicated our lives we need all the aid we can have, need to enter and follow with zeal all the open avenues to yet greater and more vital truths than those now known to us. My own pleasure is augmented by the reflection that I am meeting with the worthy representatives of the profession of an old city distinguished in the annals of medicine and surgery. The roll of the alumni of the University of Maryland contains the names of men whose moral, social, and civic virtues, whose scientific attainments, give lustre to the personal annals of the profession. The grand University takes first rank with the old and the new in the work that she has done and is doing. The strong pioneer spirit of the founders, of the earlier teachers, of Dr. Nathan Smith and his compeers, lives in the generation of to-day and will keep the old loved University faithful to her history and traditions and carry her on the way, not of glaring and ostentatious growth, but of solid growth. The glory of the old institution is not in bricks and mortar, in carved masonry, in the classic architecture of her buildings, in the splendor, extensiveness, and costliness of equipment, in the width and hard wood finish

[1] Read before the Gynecological and Obstetrical Society of Baltimore, January 11, 1898.

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of her halls, but in the common-sense teaching of those sciences which lessen human misery and save human lives. Brains have honored her halls, not her halls the brains. I will not apologize for discussing before you a subject repeatedly discussed in our societies. The involved questions should be and will be discussed until nearer settlement than now. I never have been wedded to any special method in any line of work, never practised a method peculiarly my own. With the best judgment I could command, and guided by the lessons of my own experience and that of others, I have followed the procedures best adapted to the conditions I found existing. I know that, dealing as we do with human lives, determining, as we must not infrequently, the issue of the misery or happiness of afflicted women, the very best and most we can do is not too good or too much. I am only content when I am doing better than I have done, whatever the success has been. In every case there should be a very reasonable certainty as to the character of the existing trouble, otherwise it is impossible to determine upon the method of treatment.

The suprapubic route in pelvic and abdominal surgery has never been wholly abandoned by operators of very large experience and with many surgical triumphs to their credit. There is something tempting in the novelty of every new and easy way to accomplish a difficult task, however short the way may come of reaching permanent and satisfactory results. This temptation is especially strong with mere surgical adventurers, who from commercial motives, the lowest order of motives, adopt surgery as a trade; with the beginners, who are making their trial trips in surgery with meagre equipment, a very small fund of experience to draw upon in those emergencies so repeatedly met with in abdominal surgery; and with those who have tried about all methods with discouraging success. The perfecting of a method which is only attained through repeated and thoughtful experience in its use, by a particular operator, always gives him the best results when perfected. The ease and simplicity of the removal of the uterus by the vaginal route has encouraged many to practise it, simply because they dread the numerous complications found above and prefer the rapid and easy extirpation of the uterus, regardless of adjacent serious pathological conditions. There is too common use made of the term "bridge the patient over." Every man with the picture of his own work before him, who has studied the lessons

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of his own failures and successes and has observed the work of others, knows what this "bridging over" means. It is but guessing at possibilities, it is playing a game of chance with human life as the stake, it is trusting to Nature to do what they are afraid to do. If the patient is lost in the "bridging over," it is spoken of as "hopeless." There are more patients lost by this tampering, this apprentice surgery, than were lost by the most radical operators in the pioneer days of abdominal surgery. A few weeks or months after the incomplete procedure, if the patient survives the mental and physical torture and the sequelæ of the bridging process, the patient goes into the hands of some one else with numerous sinuses about the groins, sacrum, and vaginal vault, with the pelvis charged with suppurating ovaries and tubes, the patient greatly emaciated, septic kidneys, and other important organs damaged. If abdominal section follows the vaginal incision, we have, complicating the serious pathological conditions mentioned, the vaginal cicatrix with fixation of whatever has been incised or punctured, the enucleation of which will prolong the section and give additional hemorrhage and shock and favor a tedious convalescence—conditions not experienced in completed primary suprapubic sections, where we have the removal of everything diseased and the repair of everything damaged.

Tubal occlusion with retention of pus, blood, or water demands complete extirpation, with or without the uterus. The simple removal of the uterus is an easy operation, the removal of the uterus with diseased appendages is more complicated and difficult; but neither is complete until all adhesions above have been freed and the viscera repaired.

If you can dismiss everything above the uterus, if it is simply a matter of the removal of tubes and ovaries, and not of correcting the overlying complications, the vaginal route is the route to pursue. One puncture will relieve an abscess of the appendages, but it leaves some of the multiple abscesses untouched, and it is just in this class of cases, I hold, that work from below is prohibited, is bad surgery. All the cases with vaginal incisions and drainage remain ill patients. This fact condemns the procedure.

The vaginal procedure was primarily successful in my hands, and has remained successful as I have progressed in my work; yet nothing will shake my faith in the suprapubic method as the most complete in detail from beginning to end. I have found that the vaginal operations in no particular compare with

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the upper method in the completion of work. I use the word completion in its broader significance. I mean an operation which does not begin with an explanation or apology about "properly selected" or "hopeless" cases. I mean cases which are from the pathological, diagnostic, and surgical points of view completed. In one day I operated on two cases of appendicitis. In one case I found the appendix strongly adherent to the sigmoid, in the other squeezed beneath the uterus. In these cases vaginal operation would have been dangerous and incomplete, and would have left pathological lesions antedating the operation, not corrected, and dangerous post-operative sequelæ.

The completion of the bowel toilet and the repair of large and small bowel, freeing of all adhesions, is more important than the removal of a simple suppurating tube or ovary, and the patients are not relieved or cured if lesions of the bowel are neglected or adhesions passed by or overlooked. By the lower route of operating the infection begins at the anus and the dirty surgery begins there; the lower method is dirty from beginning to end. The tearing and opening of broad ligaments is opening up sources of infection wholly avoidable by the upper method, and the removal of suppurative forms of disease from below favors fresh infection by incisions in the midst of filth. The opening up of lateral lymph spaces favors sepsis, and sepsis follows in many of these cases.

Where the vaginal method is resorted to there is not the same freedom from complications, the pulse is not so regular, the skin is not so cool as in the suprapubic method, and the post-operative sequelæ are more difficult and dangerous to deal with successfully. While this method may afford temporary relief, a more radical operation will be required later on. A great many cases where the vagina is incised and drained are placed on record as cures. They are not cures. There is only the temporary, deceptive relief of incomplete operation. If you incise a right iliac abscess and a left pus tube, leaving the right ovarian abscess and right pus tube, you leave half of the pus behind. You have only half-drained. There will be an old necrotic sac in the deep pelvis, and it should not be left. In from one to fifteen years later the woman has a sinus or sinuses in the sacrum or groin, and then it is a hopeless case. Some of these patients are subsequently treated for sepsis or typhoid fever. Secondary operations have been quite numerous of late as the result of incomplete vaginal work. Surgeons

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throughout the country are dismissing as hopeless a class of cases some one must care for. If a surgeon is afraid to open the abdomen for the purpose of enucleating huge pus tubes and ovarian abscesses, and repairing lesions of the sigmoid, freeing many inches of ileum and repairing it if necessary, he should adopt the vaginal route or send all such cases to a man with thirty-three vertebræ.

Extirpation of the uterus by the vaginal method, as I have said, is one of the easiest operations in surgery. It has been admitted by some of our surgeons that they have adopted the method because of its ease. Doubtless the surgeon does his best work along lines he can work the most easily. Removal of the uterus by the vaginal route avoids the complications so frequently found above, and which leave the patients ill and with constantly threatening and dangerous sequelæ.

Operations by the suprapubic route open the field for the correction of all the concealed mischief and complications which are walled off from the vaginal route. The aim and effort should always be to bring the patient into as normal a condition as possible and make very improbable the necessity for a repeated operation. All adhesions should be broken up. These may be to the solid structures, to large and small intestines, may implicate important pelvic vessels. With experienced surgeons there is not much disposition or reason for debating the chances of surviving the operation. Complete work offers the best chance for complete recovery in about all cases. We claim that work by the vaginal route is rarely, if ever, complete; that it is dangerous; that it is working in the dark; and that the steps of it cannot be seen. It is absurd to speak of incomplete work giving satisfactory results. I know from long experience with the very worst forms of pelvic disease that suprapubic work is complicated in many cases, and that nothing short of painstaking, good surgery will save life and completely correct the conditions.

It is not a fact that nearly all, or even the majority, of successful operators approve the vaginal procedure, unless a very new significance be given to the term successful. The large number of accidents and post-operative lesions of pelvic viscera recorded by operators who have reported quite fully their incomplete work is shocking, showing, as it does, from one to nine per cent of injuries to the uterus and two to six per cent bowel injuries. By the suprapubic route all injuries can be repaired at once. About every section done for advanced forms

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of pelvic disease, tubal and ovarian suppurations, inflamed dermoids, suppurating ectopic sacs, illustrates the value of the suprapubic route for the completion of work. In the suppurative forms of tubal disease on the right side we find the appendix involved in about six or eight per cent of every series of cases. In this group of cases we commonly find omentum, ileum, appendix, and bladder involved, all requiring some attention. On the left side we find suppurative forms of disease commonly involving the sigmoid, and also disorganized points to repair. It is the removal of growths, puriform accumulations, worthless organs, the repair of damaged viscera, well-placed drains, proper toilet, and the putting of all organs in normal relations that constitute the important steps in our procedures. Many of the old operators who have abandoned the suprapubic route for the vaginal have not improved their records—their old record is incomparably better than their new. A woman may change her bonnet four times in a year to suit the seasons, but her gynecological adviser should not change his methods with every change of the moon.

A STUDY OF THE ANATOMY OF THE NEW-BORN.

BY

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The study of the anatomy of the new-born is of twofold interest: first, in that it demonstrates the process of development from fetal to later infant life, and, second, in that it offers a basis of comparison between normal and abnormal conditions in early life.

The anatomy of the new-born infant is typical of this period of existence, undergoing developmental changes after the body assumes independence of the maternal organism. This occurs with cicatrization of the umbilical site and establishment of lactation, both of which are completed by the tenth day. The following considerations will, therefore, deal with the normal appearance and structure, including the topographical anatomy of the viscera, of the infant within this period.

Appearance.—The new-born infant at term measures 15 centimetres in length and weighs 3,500 grammes. The head and

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trunk are more fully developed than the lower extremities, owing to the supply of freshly oxygenated blood, during intra-uterine life, from the maternal source, to the arteries which are given off from the arch of the aorta, in contradistinction to the mixed venous and arterial blood which finds its way into the descending aorta beyond the junction of the ductus arteriosus. The attitude of the fetus in utero modifies to a certain extent the shape of the lower extremities. The feet have a tendency to extension, with the toes pointing upward, while the thighs and legs are slightly bowed. The latter condition is especially noticeable in infants presenting by the breech, where the extremities have been extended upon the abdomen. The abdomen is prominent, and this, together with the comparatively moderate development of the shoulders, gives an ovoidal shape to the child's trunk, with the expansive end of the ovoid at the lower extremity. The umbilicus is situated slightly above a line connecting the superior iliac spines. When the infant is lying in normal attitude upon its side the spinal curve is seen to correspond to a line curved outward from the neck to the sacrum in a single sweep, the lumbar curve in the adult being absent in the new-born. The infant immediately after birth retains the marks of compression, the result of its transmission through the birth canal. A lengthening of the longitudinal diameters of the head, the result of compression, together with flexion of the head upon the chest and compression of the shoulders, contributes to the elongated appearance of the infant. The term "fetal rod," used in connection with the unity of motion in the fetus, due to the mechanical influence of labor, suitably expresses the apparent continuity of the head and trunk. The surface is of a purplish color at birth. If, however, during delivery the child's peripheral circulation be unusually diminished by pressure, or if partial asphyxiation, produced by interruption in the placental circulation, occur, the skin is pale. This appearance is heightened by the presence of the vernix caseosa. For the first few minutes after birth the infant shows an absence of muscular tone, but with the first respiratory effort the skin becomes flushed and the child asserts its claim upon existence by its characteristic cry and jerking movements.

Visceral Anatomy. The Heart.—The average weight of the heart in the new-born is 20.6 grammes. This is in the ratio to the body weight of 1 to 164.2, which is comparatively greater than in adult life (1 to 186). The apparent increase in the size of the heart, over and above its actual increase in relation to the

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body weight, is to be accounted for by the narrowness of the thorax in the infant (Ballantyne). The slight relative increase in weight is not to be traced to the conditions of the fetal circulation, as the arterial blood pressure during fetal existence is less than that of early infancy (Winckel). As to the relative thickness of the ventricular walls of the two sides of the heart, the average result, in a number of examinations, shows a thickening of the right ventricular wall, so that a section of the heart in systole shows the walls of almost equal thickness. The septum is also thicker than in the adult. This may be due, in special instances, to some abnormality in the anatomy of the circulation, although the right ventricle in fetal life shares in the propulsion of the blood through the general circulatory system, and, in so doing, contributes a greater degree of force than in propelling the blood through the lungs in extrauterine life

The infant's heart at term shows a difference in other respects from the adult heart: first, as to position, and, second, as to relative calibre of the ascending aorta to the volume of the heart. The ratio in early infancy is 25 to 20 in favor of the heart, while in adult life it is 290 to 61 (Jacobi). This fact partly accounts for the relatively diminished blood pressure in the systemic arteries.[1] As to position, the apex beat is higher and more exterior than in later life, and is to be found directly within the mammary line opposite the fourth interspace. It is to be noted also, in this connection, that the ribs are expanded laterally by the capacious abdomen and thus elevated; so that the relative position of the apex is higher than comparison with the ribs themselves would lead us to suppose. The deviation of the axis of the heart is thus toward the horizontal, and for this reason the transverse measurement of the space occupied by the heart is greater than in the adult (McClellan).

The Anatomy of the Circulation.—The mechanical function of the heart in the new-born is modified by difference in structure from that of the adult, owing to the course of the circulation which persists up to the moment of birth. During fetal existence the right heart has shared in the propulsion of blood throughout the systemic circulation. Immediately after birth the current of the circulating blood is divided, so that the right heart supplies the pulmonary circuit and the left the systemic.

The fetal circulation is so well understood that it is necessary

[1] Money, Keating's "Cyclopedia of the Diseases of Children."

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only to describe its course in a general way. The freshly oxygenated blood enters the liver from the umbilical vein. The latter divides in the liver into three branches, two of which carry the blood into the circulation of the liver, one directly, and the other in combination with the blood of the portal vein. The third branch, known as the ductus venosus, carries the blood directly to the ascending vena cava. The latter contains therefore, above the liver, first, the partially deoxidized blood from the lower extremities; second, the blood which is supplied from the hepatic and portal veins and the ductus venosus. This mixed blood enters the right auricle, and passes thence, deflected by the Eustachian valve, through the foramen ovale into the left heart, first into the auricle, then into the ventricle, as in the adult. From the left ventricle it is propelled into the ascending aorta and its branches. Thus the preponderance of the blood that enters the heart (next in vitalizing power to that supplied to the liver) circulates throughout the vessels of the head and upper extremities before it enters the rest of the systemic circulation. This blood returns, as in the adult to the right auricle, and thence to the right ventricle. From there it is propelled into the pulmonary artery and, entering the descending aorta through the ductus arteriosus, mixes with part of the current from the ascending aorta and enters the systemic circulation to the trunk and lower extremities. It is finally returned to the placental circulation by the umbilical arteries, which are given off from the internal iliac arteries. Thus we find that the blood which is supplied to the liver is that which is freshly oxygenated; that which enters the right heart and which is transmitted thence to the head and upper extremities is partially devitalized; while that which enters the descending aorta and which is supplied to the lower extremities has not only been mixed with the current of the vena cava, but has also completed the current of the cephalic circulation.

The course of the circulation changes after birth, and the separation of the right from the left heart occurs at this time through the obliteration of the foramen ovale. This takes place by the adhesion of the free edge of the crescent-shaped fold of connective tissue, the valvula foraminis ovalis, with the border of the opening in the auricular septum. The attachment of the valve is to the posterior edge of this opening, and its free surface is toward the anterior edge. The course of the circulation is further changed by the gradual abeyance of the function of the Eustachian valve and by the obliteration of the

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umbilical vein, which is transformed into the round ligament of the liver, and of the umbilical arteries. The ductus venosus, hitherto serving as a conduit to the ascending vena cava, becomes obliterated, and the closure of the ductus arteriosus completes the separation of the pulmonary and systemic circulations.

The earliest of these changes, the disappearance of the Eustachian valve, occurs at birth. The next, in order of time, is the closure of the umbilical vein and arteries and the ductus venosus, all occurring at about the fifth day. The closure of the ductus arteriosus and the foramen ovale is complete on the tenth day.

The Lungs.—During fetal development the lungs occupy but a small portion of the thoracic cavity; but at the first inspiration they expand, so that their hitherto sharp margins become rounded and their pale appearance changes to a pinkish color. They encroach upon the pericardial surface of the pleuræ, and, for the most part of their surface, they are applied to the thoracic walls. Anteriorly their edges are further apart than in adult life, so that the anterior mediastinum is represented by the thymus gland above and the pericardium below. Histologically the structure of the lung in the new-born differs somewhat from that of later existence. The alveolar walls are thick, being made up largely of areolar tissue, and the blood vessels are loosely supported in their connective tissue surroundings (Northrup). The mucous lining of the bronchial branches is less closely applied to the basement membrane than in adult life. These conditions, considered in relation to the fact of the relatively increased blood pressure in the lungs of the new-born, should be considered as an important factor in studying the pulmonary lesions of infancy.

The Thymus Gland.—The thymus gland is situated in the superior anterior mediastinum and extends from a point above the upper edge of the sternum to the pericardium. It is of a pinkish color and is divided into two lobes of somewhat varying size, the right and left, each of which overlaps anteriorly the apical region of the corresponding lung. The size of the gland is best illustrated by its appearance in the new-born infant with the lungs in atelectasis. Upon removal of the sternum the gland comes into view, completely obscuring the great vessels and the upper portion of the pleural sacs.

The Thyroid Gland.—The thyroid gland is situated above the thymus and presents the peculiarity of being somewhat

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larger relatively to its size in the adult, and in that the isthmus of the gland is of insignificant development.

The Liver.—The liver, being the organ which receives the largest amount of freshly oxygenated blood in the fetus, is of comparatively great development. Its comparative weight to that of the body is 1 to 18 (McClellan). It differs from the adult liver, first, as to the abdominal space occupied by it, and, second, as to the comparative equality of the size of the right and left lobes, the longitudinal fissure corresponding more nearly with the sagittal axis of the body. The upper border of the liver encroaches upon the thoracic cavity, especially on the right side; while in a downward direction the space occupied by the intestines is limited by its development, as shown by the position of the transverse colon, which corresponds to a line just above the umbilicus. Superiorly the liver dulness corresponds to the third interspace on the right side, and below it extends to a point two centimetres below the costal border.

The Kidneys.—The kidneys, owing to their large size, encroach upon the abdominal space, and are relatively lower than in the adult, although the shortness of the lumbar vertebral column causes them to appear lower in the new-born. The organs differ from the adult also in their distinct lobulation and the comparatively increased size of the suprarenal capsules. The kidneys are situated at the same level, as a rule, contrary to the general supposition, namely, that the right kidney is displaced downward by the right lobe of the liver. The Malpighian pyramids are especially distinct. The comparative capacity of the renal pelvis corresponds to that of the adult. In the kidneys of the new-born is found a yellowish, streaked appearance of the pyramids from the deposit of urates in the collecting tubules. This deposit, sometimes known as "uratic infiltration," consists of the urates of ammonium and sodium and of uric acid crystals. Lying in the medullary zone, it presents, on exposure to light of the sectional surface of the kidney, a glistening appearance. This deposit is found especially in infants who have died between the second and fourteenth days, and is not seen in those who have not breathed. It is the result, in all probability, of the rapid metabolic changes which take place during the first days of life. This deposit is the result, according to Ziegler, of the production of an amount of uric acid in excess of the solutive power of the urine.

Alimentary Tract.—On exposing the abdominal contents in a new-born infant there will be observed a displacement from

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above of the intestines by the overlapping liver, and from below an encroachment upward by the bladder, which has not yet become retained within the pelvis.

The Stomach.—The stomach, when empty, is also hidden from view by the liver. It is more vertical than in the adult, so that a line connecting the esophageal orifice with the pylorus is coincident with a line drawn from the cartilaginous junction of the fifth rib on the left side to the anterior superior spine of the ilium on the right side—an angular deflection of 30° from the axis of the stomach in the adult. The stomach in the infant is tubular and its fundus is undeveloped. Its minimum capacity is twenty-five cubic centimetres. It is important to note the thinness of its walls and the delicacy of its construction.

The Small Intestine.—The course of the duodenum is similar to that of the adult, namely, first in a backward direction, then downward toward the left, and finally upward, terminating at a point to the left of the spinal column and on a level with its beginning. Its functional activity is marked, although the number of Brunner's glands is comparatively less than in the adult. The duodenal folds are also less developed than in later life. A longitudinal section of the intestinal tract in its upper part exposes the ostium of the ductus choledochus, permeable, in most instances, to the flow of bile, but frequently partially blocked by a hyperemic swelling of the tubercle surrounding the opening—a condition which is significant in connection with icterus neonatorum. The length of the small intestine is less variable in the new-born than is commonly supposed, the average measurement being 287 centimetres (9 feet 5 inches) (Rotch). The intestinal tract is less fixed in the infant than in the adult, and in the new-born the parietal attachment of the mesentery is in more of a horizontal direction, in contradistinction to its oblique attachment in the adult.

The Large Intestine.—The points at variance with the anatomy of the large intestine in the adult are the following: first, the position of the cecum, the latter being yet undescended to the right iliac fossa; second, the independent position it occupies owing to its complete envelopment in the peritoneal covering; third, the generally movable condition of this part of the intestine, on account of its free mesenteric attachment; and, lastly, the position of the sigmoid flexure, principally without the pelvis. The length of the large intestine averages 56 centimetres (1 foot 10 inches). The appendix is

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usually upon the posterior side of the cecum. According to Treves, the fetal development of the cecum is in the form of a pouch-shaped cavity prolonged from the junction of the large and small intestines; from this is developed the appendix. The early mesenteric attachment of the latter disappears at the end of fetal life. The length of the appendix varies from 5.3 centimetres (2⅛ inches) to 7.5 centimetres (3 inches) (Rotch).

The Spleen.—The spleen, in contradistinction to the other greater glandular organ of the abdomen, the liver, is relatively smaller than in the adult.

The Pancreas.—The pancreas occupies a similar position to that in later life. The tail of the organ lies above the left kidney and in apposition to the spleen. Its head is surrounded by the curved duodenum.

The Suprarenal Bodies.—The suprarenal bodies surmount the kidneys and are comparatively much larger than in the adult, corresponding in size to at least one-third of the volume of the kidney. The writer has observed a marked diminution in size in new-born infants which have succumbed to inanition accompanied by great wasting.

The Bladder.—The bladder at term is situated partly behind the symphysis pubis and partly above the inlet of the pelvis. When distended it assumes an oblong shape and becomes, so to speak, erectile, its long axis being directed forward and upward, so that it easily rides above the pubic region. The presence of the bladder in the new-born in the abdominal cavity contributes, together with the large size of the liver, to the characteristic abdominal distension. The bladder walls are thick, and the capacity of the organ when fully distended averages 5¼ fluidrachms (19.5 cubic centimetres), although in some instances it is even greater than this. Ballantyne states that it is rare for the bladder to contain at birth more than 1 to 1½ drachms (5 to 6 cubic centimetres).

The Pelvis.—The capacity of the infant pelvis is not sufficient to accommodate the organs which are normally found within the pelvis in adult life. The bladder, the sigmoid flexure, and the corpus uteri in the female, are without the pelvis. The reason for this is found in the sheerness of the iliac bones and the straightness and narrowness of the sacrum, together with the inclination of its coccygeal extremity toward the axis of the pelvic canal. Although the inclination of the pelvic inlet is much more extreme than in the adult, the axis of the pelvic canal undergoes comparatively little deviation from a

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straight line as it passes the inlet, so that in the infant the pelvis seems to be a simple prolongation of the abdominal cavity (Kelly).

The Female Sexual Organs.—These organs in the new-born deserve special study in connection with the formation of the pelvis. They constitute exclusively, with the exception of the rectum, the visceral contents of the female pelvis. The uterus is comparatively larger than in the adult, and there exists no angle of flexion at the junction of the cervix with the body. The cervical portion constitutes the greater part of its length, and causes the fundus uteri to appear above the inlet of the pelvis. The Fallopian tubes are markedly convoluted and thickened. They are comparatively longer than in the adult. Lying, as they do, with their convolutions pressed together, they present a lobulated appearance. They extend fully across the pelvis to the lateral pelvic insertion of the broad ligaments, and, together with the ovaries, fill the space on either side of the uterus. The fimbriated extremities are freer of peritoneal attachment than in the adult, and are disposed with the ostia presenting upward and forward. The mesosalpinx is much more extensive than in the adult, the whole broad ligament being more relaxed. The ovaries lie transversely behind the tubes and above the inlet of the pelvis, their outer ends somewhat higher than the inner extremities (Ballantyne). They are disproportionately large when compared with fully developed ovaries, each exceeding in length the transverse diameter of the uterus. The borders are crenated. The trophic supply to the genital organs, occupying, as they do, the pelvis so completely, must be an important factor in differentiating the early development of the female pelvis—a point upon which it is impossible to lay too much stress.

The Brain.—The following points in the consideration of the brain are important: its proportionately increased size, the more intimate apposition of the dura mater to the inner table of the skull, and the greater amount of subarachnoid fluid.

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TREATMENT OF EARLY ABORTION BY THE GENERAL PRACTITIONER.[1]

BY

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It is not my purpose in this short paper to review the pathology of this condition, its signs and symptoms, nor to go into the history of the advance that has been made in its treatment in these latter surgical days. Sufficient it is to say that with the coming of antiseptic and aseptic methods, with the rich knowledge which has been given us in all branches of surgery, an improvement in the treatment of these cases has been one of the things which have proven eminently satisfactory in the hands of the surgeon and many practitioners. There is no doubt but that a timely and judicious cleaning-out of the uterine cavity in cases of inevitable early abortion has saved and is saving many lives and still many more from invalidism.

This has been a subject which has been of much interest to the general practitioner, and rightly, for it is peculiarly within his province that it falls. It is he who is usually summoned, and it is he upon whom the life and the future welfare of the patient depend. It is not of the treatment of these cases in our hospitals, where every convenience and plenty of assistants are afforded, that I wish to speak to-night, but rather of the treatment under the peculiar circumstances with which the general practitioner has to deal, obliged, as he is usually, to treat these cases at home and often without aid. It is to be regretted that the so-called conservative treatment (which means bed-rest and ergot and tampons) still remains very much in vogue. This comes, I believe, not from any lack of knowledge, but from a fear of infecting or puncturing the uterus, or of causing pain, or because the patient is in uncleanly surroundings. I believe this is wrong, it being possible, I think, to bring these cases to a most satisfactory terminus under most adverse circumstances. I wish to emphasize two points to-night: first, the importance of early intervention, and,

[1] Read before the Grand Rapids Academy of Medicine, March 21, 1898

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second, the fact that the operation can be done by the physician under any circumstances. My experience embraces about one hundred cases, treated in all sorts of surroundings, often in houses that were dark and filthy, and usually without an assistant. By far the greater part of these were treated by the curette, and especially is this true of the latter half. I believe we should curette and empty the uterus in all cases of early abortion, except those which are progressing rapidly of themselves, in which there is slight hemorrhage and no sepsis, and the fetus and decidua come away *en masse*. These conditions, according to my experience, are the exception and not the rule, for either there is more or less severe hemorrhage, a rise of temperature, the case is protracted, or the contents of the uterus come away in fragments. When this takes place it is rare for the uterus to empty itself completely for days or weeks, and the patient is constantly submitted to the dangers of sepsis or hemorrhage. The use of tampons should be restricted, I believe, to those cases where dilatation is slow, unattended by other complications. Such cases require careful watching, frequent change of tampons, and operation if the procedure is not attended by more rapid progress of the case. Tampons should never be used for hemorrhage, curetting being far more satisfactory. I have given up the use of ergot, it tending, I believe, to retard rather than hasten dilatation. As to methods of operation, if one can procure a good assistant it will greatly facilitate matters, but this should never deter one from proceeding should none be procurable. The operation can be done without an anesthetic and without causing pain, the greatest gentleness being, of course, imperative. One requires a sharp curette, a uterine sound, a fountain syringe, a dilator, a uterine irrigator or soft or semi-elastic catheter. A small pair of placental forceps may be useful in removing large pieces. The patient should be placed across the bed, the feet resting on the edge or, as is often more convenient, on the knees of the operator. A towel wrung dry from a bichloride solution should be placed under the patient. After washing the buttocks, the vulva, and the vagina with soap and water and bichloride 1:2000, the hands and instruments being duly prepared, one reaches the cervix and, if possible, removes with the finger (but never with the finger-nail) any large pieces lodging within reach; the other hand on the abdomen will assist this maneuvre. With the finger one may dilate the cervix if necessary, or if that is impossible one may use a Wylie dilator; then with the curette

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one should proceed to empty the uterus, proceeding by touch alone and using the greatest care not to injure the uterine walls. The finger of the left hand rests during this process on the cervix and guides the curette. The whole operation, if done with proper care and thoroughness, may take more than half an hour. After one has gone over the walls carefully the uterus should be irrigated. This can usually be most conveniently done with a soft or semi-elastic catheter. It is usually impossible to procure at such a time sterilized water of sufficient coolness, and it has always been my custom to wash out with a mild bichloride solution, 1:4000. I have never had the least trouble from this, but have always been careful to see that none of the solution was retained in the uterus and vagina. I have never dared to depend on the milder antiseptics. The patient is then put to bed and a sterilized pad applied. The after-treatment consists of bed-rest and antiseptic douches. There may be a few small clots passed within the first twenty-four hours, but, if the work has been well done, nothing further. Hemorrhage means invariably that all has not been removed; the same may be said of sepsis, except in those cases where the trouble has already gone beyond the uterus. Such cases, however, are or should be rare and do not come within the range of this paper.

WONDERLY BUILDING.

PROPHYLAXIS OF PUERPERAL SEPSIS IN COUNTRY PRACTICE.

BY

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Marion, Kansas.

MUCH is now being said of the prophylaxis and treatment of puerperal sepsis. I have been very much interested in reading the communications and discussions in the last number of the JOURNAL. But I am impressed with the fact that these articles come from men who practise in the great cities. To be sure, that fact makes them all the more valuable, but we need both sides to make a complete set of practical rules by which to prevent the occurrence of this dreaded accident. I wish, with-

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out occupying much space, to formulate a line of treatment for the busy country physician who earnestly desires and faithfully endeavors to prevent puerperal sepsis in his practice.

The city physicians have much better facilities for employing asepsis in their management of labor cases than have we who have elected to practise in the smaller places. They have also educated their patients to consult them before their confinement, when they can give explicit directions or perhaps send them to some maternity hospital where they are enabled to give the preparatory aseptic attention. But the country patients, and especially the Western ones with their proverbial push, have no time to waste, and they have been educated to think that the physician has no field of usefulness until labor actually begins In a large number of obstetrical cases that have occurred in my practice, very seldom have I been consulted before labor commenced. So I have been unable to carry out the prophylaxis which is recommended and in which I thoroughly believe. The belief that a great many physicians read the JOURNAL who have not these advantages impels me to give my experience, not alone that it will be so very valuable to others, but also in turn to be benefited by the experiences of others. Selfishness, then, is partly my excuse for this article. As I have said, only a few times have I been consulted before the advent of labor, and then, as a rule, only because of some complication. The first notice I receive is, "Come quick: confinement case." On arriving I may find pains just commencing or labor far advanced, and soon, or not so soon, it may be, the labor is concluded. In a series of 73 cases I have never lost a mother, and only twice have I been compelled to sympathize with the parents over a dead child. In only 3 cases have I had a temperature over 100° F., and these were due to some complication. This record, while not large, is very gratifying to myself. The routine treatment in normal labors is as follows: Sponging off the external organs with a 1:2000 bichloride solution. Thorough cleansing of the hands with soap and water, and then immersion in a strong bichloride solution; in fact, if I have time, I am just as careful with my hands as if doing a laparatomy. I had rather the head to be born without assistance on my part than to introduce a finger into the vagina that is not surgically clean. To this careful preparation of the hands I attribute my success. After the placenta is expelled and the bleeding, if any, stopped, I wash the external genitals and dust

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with a powder of boric acid and subnitrate of bismuth. A large pad of absorbent cotton is laid over the vagina and held in place by a firm T bandage.

Unless I suspect gonorrhea I never use a vaginal douche either before or after the birth of the child. The scrubbing of the vagina I believe unnecessary, as it dries up the secretions which are better than all the bichloride or green soap we may employ. In uncomplicated cases the uterine injection I believe to be positively harmful. The danger of forcing vaginal germs into the uterus counterbalances any good that might accrue. A theoretical plan can be outlined which is admirable, but in actual practice it is quite different. As few examinations as possible, thorough cleansing of the hand, and a tight, firm T bandage, is the nearest approach to actual perfection that can be obtained, and one which in my hands has proved to be very satisfactory.

CATARRHAL SALPINGITIS.[1]

BY

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SALPINGITIS, or inflammation of the Fallopian tube, includes, according to Garrigues, from six to twelve per cent of all female diseases. Inflammation of this tube may be roughly divided into catarrhal and purulent. I shall confine myself almost wholly to a consideration of the former.

Catarrhal salpingitis may involve one or both tubes. When only one tube is diseased it is more frequently the left. During catarrhal inflammation the mucosa of the tube becomes swollen, hyperemic, edematous, and its secretion increased. This process may cause occlusion at any point, or closure of either the uterine or abdominal opening. With blocking of the ostium uterinum we may get a backing-up of secretion, which, escaping into the peritoneal cavity through the ostium abdominale, will cause a localized or diffuse peritonitis. Or the inflammation may spread by direct continuity of tissue through the muscular and serous coats to the peritoneum.

We may divide the causes of salpingitis into predisposing

[1] Read before the Oxford County Medical Association, February 28, 1898, at Oxford, Me.

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and exciting. Any woman who has a uterine discharge due to an inflammation is liable to an extension of this inflammation from the uterus to the tubes. Taking cold at the menstrual period, violent exercise immediately before or during menstruation, may precipitate such an extension. The infection may pass directly through the ostium uterinum or be conveyed indirectly by absorption through the lymphatics. Then, again, the use of instruments not strictly aseptic within the uterine cavity is a very common exciting cause.

The symptoms of an oncoming salpingitis may be sudden or insidious. Frequently, after a few hours or days of indisposition, the patient will be taken with severe pains of a colicky nature. These sudden symptoms are probably indicative of an extension of the inflammation to the peritoneum. With the onset of the severe pain come fever, vomiting, distension and tenderness of the abdomen. If the attack happens during menstruation the flow may be stopped; or, happening between the periods, the engorgement of the parts may cause a loss of blood. This hemorrhage may be quite profuse. Frequent and painful micturition and frequent and irritating discharges from the bowels are annoying symptoms generally present. The pain may at first be referred to the pit of the stomach or to the region of the liver, and more than once I have found my patient with a mustard plaster on the chest, the discomfort on taking a long breath causing suspicion of disease of the lungs. The temperature ranges from 100° to 104°, the pulse from 90 to 130. A rectal or vaginal examination at this time will reveal fulness and tenderness in the region of the tubes.

After from two to four days the vomiting ceases and the temperature falls to about 99°. There is no hemorrhage now, but either a constant or an intermittent outflow of mucus from the vagina. The distension subsides, the tenderness may be marked only over one or both tubes, and the patient is on the road to convalescence. The improvement may now be continuous, but more frequently, after some little over-exertion or some slight cold, or without any assignable reason, the patient has renewed attacks with pain, fever, tenderness, distension, and vomiting. Or the patient may improve up to a certain point and then apparently remain in the same condition for weeks or months. Her temperature may be just a little elevated, perhaps fluctuating between 98.6° and 99.8°. She may have only a few flighty pains at times through the

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abdomen. The tenderness is limited to certain areas, generally over the tubes, and the abdomen is only at times distended. If her menstrual period comes on at this time it is generally passed without much discomfort. This is a time especially trying to patient, friends, and physician. The patient feels like sitting up, and the friends cannot see any reason why she should not, and it is difficult for the physician to persuade them that the only safe course is absolute rest in bed. Many patients, with this rest in bed and certain lines of treatment, ultimately recover. Others without it, and some in spite of it, lapse into a condition of chronic invalidism. They are up and around the house, but with a constant slight elevation of temperature, persistent disagreeable sensations in the region of the tubes, and occasional acute attacks of varying severity. Such cases, if they do not yield to mild measures, can get relief only from operative procedure.

The diagnosis of catarrhal salpingitis with peritonitis is not always easy. It may be confounded with purulent salpingitis, oöphoritis, appendicitis, typhoid fever, intussusception, etc. To distinguish from purulent salpingitis, from oöphoritis, and from appendicitis is sometimes very difficult. Purulent salpingitis generally commences and ends as a catarrhal process. In the purulent variety we have a history of infection with some pus-producing organism, frequently the gonococcus. Then in the purulent process we have symptoms of suppuration (fluctuating temperature, "skating" temperature, recurrent chills, etc.) and an accumulation of pus which may point either toward the vagina or rectum. If not punctured this pocket of pus may ultimately break and discharge through the vagina, rectum, abdominal wall, or flood the peritoneal cavity. A positive diagnosis between catarrhal salpingitis and acute oöphoritis is in many cases impossible. Oöphoritis, as a rule, is accompanied by salpingitis or peritonitis. The chief points of difference are as follows: Extensive acute oöphoritis is rare outside of the puerperal state, while salpingitis is a common affection. The inflamed ovary is globular in shape, while the inflamed Fallopian tube is sausage-shaped. Then, furthermore, in oöphoritis the pain always increases as menstruation approaches. As the treatment of oöphoritis and salpingitis is practically the same, a differential diagnosis is not essential. To distinguish catarrhal salpingitis from appendicitis the history of the onset, the causes and the occurrence of a bloody vaginal discharge or suppression of the menses are valuable

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aids. Then in appendicitis we have the most tenderness over McBurney's point. In salpingitis the urgent acute symptoms generally subside in a few days, while in appendicitis they remain the same or become worse.

The prognosis in salpingitis is variable. Some cases terminate fatally; many more of the patients are sterile and more or less invalids; a few make perfect recoveries.

The treatment is important. During the acute stage rest in bed, the relieving of pain by hypodermatic injections of morphine or, better, rectal opium suppositories, an ice bag to the abdomen, or, if that be not well borne, Priessnitz compresses, fulfil the indications. At the outset a calomel and saline purge is advisable. Later hot vaginal douches of sterilized water, Priessnitz compresses, glycerin and ichthyol-glycerin packs, tincture of iodine applied to the abdomen and the vault of the vagina, together with tonics, good food, and perfect rest in bed, offer the best means of obtaining recovery. Of course arising circumstances call for modifications of this line of treatment. If the attack comes on during menstruation and the flow is suppressed, hot applications to the abdomen instead of cold, and a hot mustard foot bath, are advisable. If there is much distension, turpentine stupes will give relief. The Priessnitz compress consists of a folded towel wrung out of cold water and applied over the lower portion of the abdomen. Change every six hours. The compress can be held in place by a flannel band encircling the body. The suppositories contain one grain of powdered opium. One suppository every four or six hours is generally sufficient.

Rest in bed throughout is of prime importance. If the patient wishes for the very best results, she should be content to remain in the recumbent position until the temperature is normal and nearly all the tenderness has subsided. Then for a number of months she should be a sofa-pillow patient, moving about very carefully, taking pains not to get over-tired, not to walk up and down stairs, and avoiding all jarring.

If the leucorrheal discharge continues it is a question whether dilating and curetting should be performed or not. Sometimes it does more harm than good. It should always be performed under the strictest aseptic conditions. Theoretically, by the operation of dilating and curetting we not only remove the cause of the disease (most of the cases of inflamed tubes being due to an extension from an inflamed endometrium), but by depleting the blood vessels and the lymphatic vessels of the

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uterus we relieve the congestion in the contiguous inflamed tubes—acting on the same principle as the leech applied to the tragus in inflammation of the middle ear.

Many of these inflammatory pelvic exudates, that have resisted other methods of treatment and have persisted long enough to become chronic, are benefited by electrical treatment. It is a favorite plan with many practitioners to use a saturated solution of the iodide of potassium in the vagina in connection with the positive pole of a galvanic battery.

As we remember the location of the Fallopian tube and the size of its calibre (in its largest part being barely able to admit a uterine sound, in most parts capable only of admitting a bristle), we realize that we can treat the seat of the lesion only through the intervening tissues, it being impossible to apply medication directly to the diseased parts except through surgical interference.

CASE I.—Mrs. H., æt. 33. Called on March 22. Found patient suffering severe, sharp pains in the region of the liver and epigastrium. Pains had come on suddenly. She was just getting over the grippe when she caught cold and had these severe colicky pains. The woman had commenced to menstruate the day before, which was four days ahead of her time. Pulse and temperature slightly elevated. Learned the following about her previous history: Had had two confinements, twins at the last one four years previous. After birth of first child, had symptoms of endometritis. Had been much better since birth of twins until the past three months. Three months ago her husband had typhoid fever, and she had worked extra hard taking care of him. Since then had been having an abundant leucorrhea, pain in the back, bearing-down sensations in abdomen, constipated bowels, and reflex head and stomach disorders. Her periods had been irregular, generally sick every three and a half weeks, flowed about six days and used about twelve napkins. Not much pain at the catamenia. I left her some chloranodyne, ordered her to stay in bed, and promised to see her the next day. Twenty-four hours later the pain had shifted to the right iliac region. Patient was vomiting and was unable to turn from side to side without causing distress. Her abdomen was slightly distended. Patient felt more comfortable with legs flexed, and could not lie on back for any length of time without flexing thighs. Her tongue was coated, mouth foul. Pulse 96, temperature 100.3°. Bimanual examination showed marked fulness on the right side, exqui-

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sitely tender to the touch; could not define its outlines. Gave her calomel and salines, strychnine and liquid nourishment, and ordered hot applications to the abdomen. Vomiting persisted from time to time. Temperature gradually crept up.

March 29 (one week after my first visit): Pulse 100, temperature 100.2°. Ceased menstruating to-day, but two days later, April 1, had a bloody discharge from the vagina; pulse 114, temperature 102.7°. Two days later, April 3, pulse 105, temperature 102.6°. More bloody serous discharge, also frequent unsatisfactory mucous discharges from the rectum. Bowels flaccid but tender, especially in the right iliac region. Flighty pains through bowels at times. Vomits occasionally. Used Priessnitz compresses, hot vaginal douches, rectal opium suppositories, hot rectal injections, strychnine, and liquid nourishment. For the next three days the temperature stayed up to 102°, then gradually dropped, and on April 14 it was normal. As the tenderness disappeared a sausage-shaped mass could be distinctly felt to the right of the uterus. Under packs, douches, rest in bed, etc., in four weeks' time the patient was practically well and has remained so ever since.

There are a few interesting features about this case. First, as to the cause. The extra work and strain incident to taking care of her husband had caused a recurrence of a pre-existing endometritis. Then catching cold just before her menstrual period (at a time when she was weakened by a run of the grippe) was just the thing required to cause an extension of the uterine inflammation to the tubes. Then, another interesting feature, the first pains were in the region of the liver. Finally, after her menstruation had ceased, the engorgement of the parts was so great as to cause a recurrence of the bloody discharge.

CASE II.—In a young lady 22 years old, whose attack started in with marked severity, an alarming faint was followed by excruciating colicky pains. The cause in this case was severe over-exertion at the menstrual period and catching cold at this unfavorable time. Previous to the attack the girl had been pretty well with the exception of a slight leucorrhea.

When I saw the patient her pains had subsided a little, but her abdomen was as tense and tympanitic as a drum and tender all over. Her temperature was 102°, pulse 110, and she was constantly vomiting. Her menses had been suppressed. This condition of affairs persisted, with gradually lessening severity, for about a week. Then followed a long period during which the patient made no gain. Her temperature was

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slightly elevated, abdomen tender over tubes, bowels at times tympanitic, and occasional flighty pains. Most of this time she was confined to the bed. Occasional exacerbations, almost equalling in severity the original attack, occurred at times. The last and severest of these occurred five months after the first trouble. Sometimes these recurrences would seem to be caused by catching cold; oftener they would occur without any assignable reason. At the present time, fourteen months from the first, the patient considers herself well.

CASE III.—Another case in a girl of 16. I saw her after she had been sick five days. Her mother had kept her under the influence of morphine all this time. They had located her trouble in her chest, because it hurt her to take a long breath and because she had received a blow there the day before she was taken sick. She was in bed when I saw her and feeling quite comfortable. Pulse 106, temperature 100.8°. Examination of the chest was negative. Her abdomen was slightly tympanitic in the lower part and slightly tender all over. The place of greatest tenderness was at McBurney's point; another very sensitive area was just above the symphysis pubis. A rectal examination revealed a distinct, hard, tumor-like mass above the internal sphincter on the right side. Its outlines could not be distinguished on account of its sensitiveness. By further inquiries I learned that the girl had vomited frequently during the past four days, that she had complained of pain on micturition, and that in spite of the morphine she had had from three to six small, watery, aggravating, and unsatisfactory movements of the bowels daily. Mother said that the girl did not have any vaginal discharge except a slight leucorrhœa. Considering the fever, vomiting, and most sensitiveness over McBurney's point, and because the attack came on midway between the menstrual periods and seemed to have no connection with the generative organs, and from the fact that the tumor, as revealed by examination through the rectum, seemed high up, I was inclined to a diagnosis of appendicitis. But the next day, when I found the patient having what she supposed was a rather profuse menstruation two weeks ahead of her time, I changed my diagnosis to salpingitis. Unfortunately for myself, I was unable to watch further the progress of this case and do not know how it terminated.

Two of the cases started in with pain in the upper part of the abdomen, in the epigastric and right hypochondriac regions.

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The cause of this symptom has been attributed to nerve distribution.

Then another symptom which I have not seen described in text books occurred in these cases—the frequent, aggravating watery discharges from the rectum, called "acrid movements" by the patient. This irritated condition of the lower bowel I am positive was not due to any medicine taken. Whether it was a sympathetic symptom, or an actual inflammation due to an extension from the inflamed tube, I know not. It seems as reasonable to have an irritable condition of the rectum as an irritable bladder with frequent micturition.

(*a*) EXTRAUTERINE PREGNANCY; TEMPORARY ARREST OF HEMORRHAGE BY PLACENTAL TISSUE; OPERATION; RECOVERY.

(*b*) INTERSTITIAL FIBROMA; HYSTERECTOMY; RECOVERY.

(*c*) INTRALIGAMENTARY FIBROMA: HYSTERECTOMY; RECOVERY.[1]

BY

GEORGE ERETY SHOEMAKER, M.D.,

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With three illustrations.

(*a*) EXTRAUTERINE PREGNANCY.

THIS case is of interest as showing the danger of relying upon a temporary arrest of hemorrhage, and also as demonstrating a possible method of spontaneous cure.

Mrs. M. T., aged 37. Brought by Dr. Joseph Farley, who had correctly diagnosed her condition. Strong, muscular woman. One child 14 years ago, no miscarriages. Since the labor, which was followed by some fever, her menstruation has been irregular, interval three to four weeks, duration from three to twenty-one days, with pain the first two or three days. Quantity not excessive usually. She never missed any periods until this time.

History of Present Attack.—Three weeks before she was

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, March 17, 1898..

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brought to the hospital, her menses having been last seen nine weeks before that time, there was severe pain in the right iliac region, radiating to the vagina and rectum, where the pain has since often been more severe than in the abdomen. During the three weeks which have elapsed since the first paroxysm there have been three others, with sharp and stabbing pain, accompanied by vomiting and followed by faintness and thirst. For one week a dark reddish discharge. No morning nausea. No frequency of urination. Between the paroxysms the patient

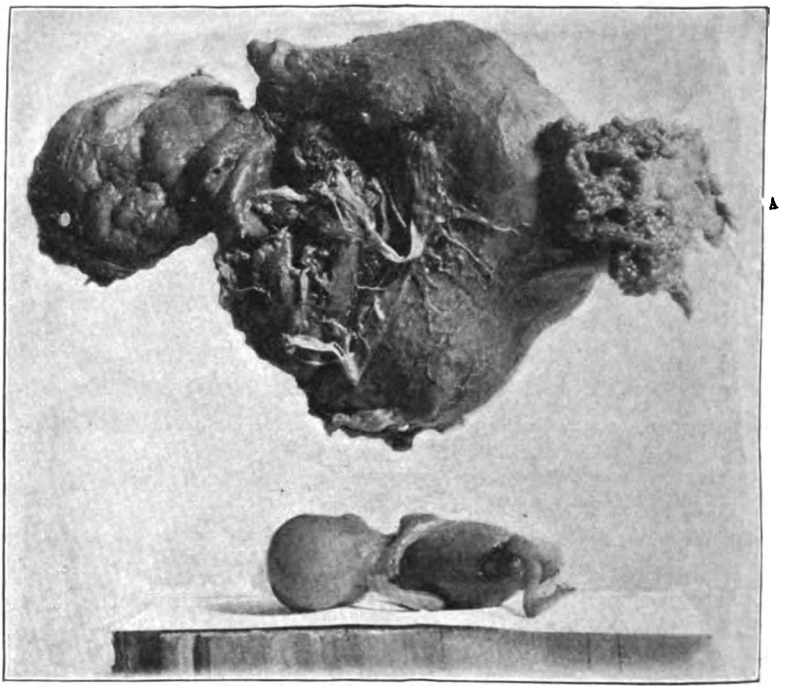


FIG 1.—Extrauterine pregnancy.

has had some dull pain, but rode her bicycle several miles the day before admission.

Examination.—Abdomen extremely tender in right ovarian region. Per vaginam a rounded mass, the size of a fist, rather high up and involving the broad ligament on the right side; uterus normal in size, restricted in movement, cervix soft, cul-de-sac empty; vagina decidedly blued; breasts suggest pregnancy. Diagnosis, partial rupture of extrauterine pregnancy.

Operation.—Black clots free in peritoneal cavity. Fetus

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near the incision. In order to make a pedicle it was necessary to turn clots out of the right broad ligament, after clamping. A separate hematoma filled with recent blood dissected up the posterior pelvic peritoneum. The peritoneum was torn through and this blood washed out. After ligating the right tube and ovary no bleeding occurred. The postperitoneal hematoma was separated from the distended broad ligament by a distinct sulcus and appeared to contain a pint of blood. It had probably formed just before or during operation, and illustrated the fact that a recurrent hemorrhage may take place when the original point of bleeding is closed, as had spontaneously occurred here. Salt solution flushing. No drainage. Recovery uneventful.

Specimen.—The original rupture had occurred on the upper posterior surface of the tube, near its middle, and the opening had been spontaneously closed by the frond-like placental structures which can be seen in the illustration at A protruding like a fungoid growth from the opening. The fetus is apparently six or seven weeks old, the body and head measuring four and a half centimetres. There is broad-ligament tissue in the specimen, which, like the tube, is distended by clot. The attached ovary is normal. The placental formation is still incomplete.

(*b*) FIBROMA; HYSTERECTOMY FOR HEMORRHAGE; RECOVERY.

X., single, 37 years old, private patient. Ten years ago the menses began to be too free. For the past three years severe hemorrhage has occurred several times, and one week before coming under observation the patient fell down stairs from weakness following a severe bleeding. The menses always last a week and for the first three days she would soak twelve to fourteen napkins a day. Bladder irritation from pressure very annoying. Four years ago pain down the legs and in walking was severe and the left foot swelled. This was probably due to pressure, afterward relieved by change in position of the growth. Examination showed an intrapelvic fibroma, very slightly movable. The anterior vaginal wall was depressed by the growth, the cervix far back. Impossible to raise mass from pelvis. Vagina very small, perineum rigid. As the hemoglobin was only 42 per cent and the patient had striking symptoms due to anemia—viz., tinnitus aurium, palpitation, precordial distress, faintness on ascending a few steps—attention was given to the blood condition prior to operation, as

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hysterectomy would then have been dangerous. By rest in bed until just before the next period, by massage, careful feeding, and the administration of manganese and a peptonate of iron, the hemoglobin was brought to 62 per cent, beyond the danger line, and operation was performed by the abdominal route.

Operation.—The single hard fibroma was interstitial and had developed below the bladder attachment in the anterior uterine wall; continuing to enlarge, it had raised up both bladder walls and made the bladder and broad ligaments appear like a tensely drawn horizontal sheet across the top of the uterus and tumor. Ligation of the blood supply made bloodless amputation of the uterus possible, after dissecting down the bladder. Myomectomy was not deemed wise owing to the situation of the mass under the bladder attachment and because the chances were in favor of the invasion of the uterine cavity by the growth, as afterward proved to be the case. The patient made a splendid recovery and has gained much weight. Her delight at delivery from her trouble of years knows no bounds.

Specimen shown.—Both tubes and ovaries present. One ovary greatly flattened out, apparently by prolonged pressure. The fibromatous nodule in the anterior wall is three inches in diameter. It is covered by a capsule of uterine muscle one-fourth of an inch thick. The nodule is exposed within the uterine cavity over an area half an inch in diameter, well above the internal os.

Remarks.—The question of myomectomy from below was considered in this case, but the smallness of the vagina and the locking of the mass in the pelvis made it impossible to determine whether all of the foci of development could be removed or not, even were free incision of the perineum and vagina done. The vaginal operation would have been bloody, and the patient was anemic. That she was single and 37 years old was not without its bearing on the question.

(*c*) INTRALIGAMENTARY, MULTINODULAR FIBROMA; HYSTERECTOMY; NEPHRITIS; RECOVERY.

B., age 36, single. Sent by Dr. M. L. Focht, of Lewisburg, Pa. Well until one year ago, when the tumor was first noticed as a lump the size of a fist. About the same time the periods, formerly normal, became profuse, ten to twelve napkins a day being required for four or five days, the periods appearing every three or four weeks. Other symptoms not

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prominent, except bladder irritation. From the prominence of the tumor in the lower abdomen the patient, who was single, was somewhat sensitive.

Diagnosis of hard, multinodular, probably intraligamentary fibroma, rapidly growing and causing hemorrhage, made the advice in favor of hysterectomy necessary. Urine examination negative.

Operation.—On opening the abdomen the two ovarian arteries and the right uterine were secured without difficulty. It

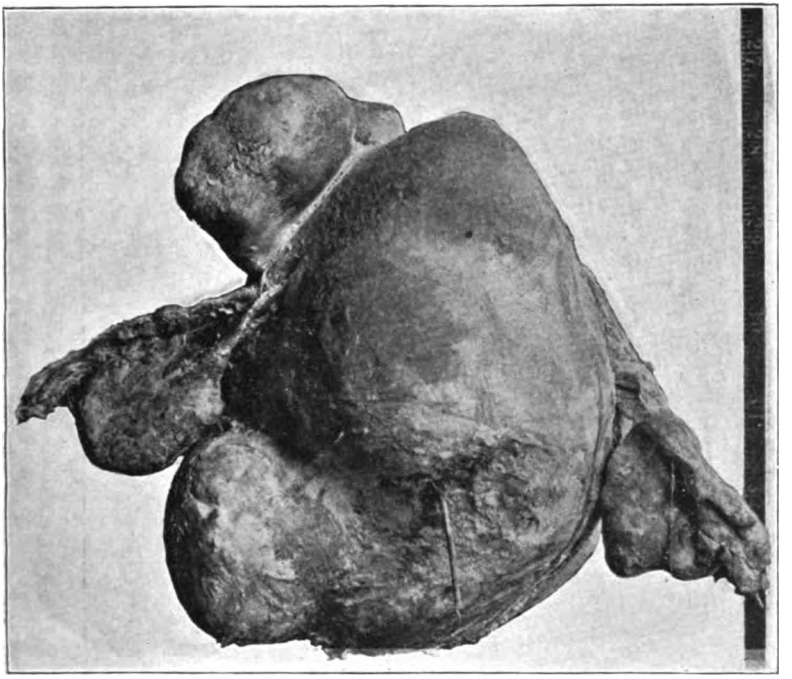


FIG. 2.—Intraligamentary fibroma, seen from below.

was then necessary to shell out an intraligamentary mass on the left before securing the uterine artery of that side, much care being required to avoid injury to the ureter. The cervix was cut off, closed with chromicized gut, and the stump covered and dropped. The abdomen was closed without drainage. There was little shock, the pulse ranging from 72 to 85 during the next twenty-four hours, being 70 when she left the operating room. At the end of sixty hours, notwithstanding the fact that the bowels had moved freely and there was no vomiting,

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there was a sudden rise of temperature to 102°, touching 104° the next day, and then remaining steadily near 103°. The urine was found to have diminished greatly, four ounces only being collected in twenty-four hours on the fourth day, and this contained albumin with hyaline and fatty casts. Prompt resort to continuous digitalis poultices over the back, after dry-cupping, subcutaneous salt solution to counteract threatening

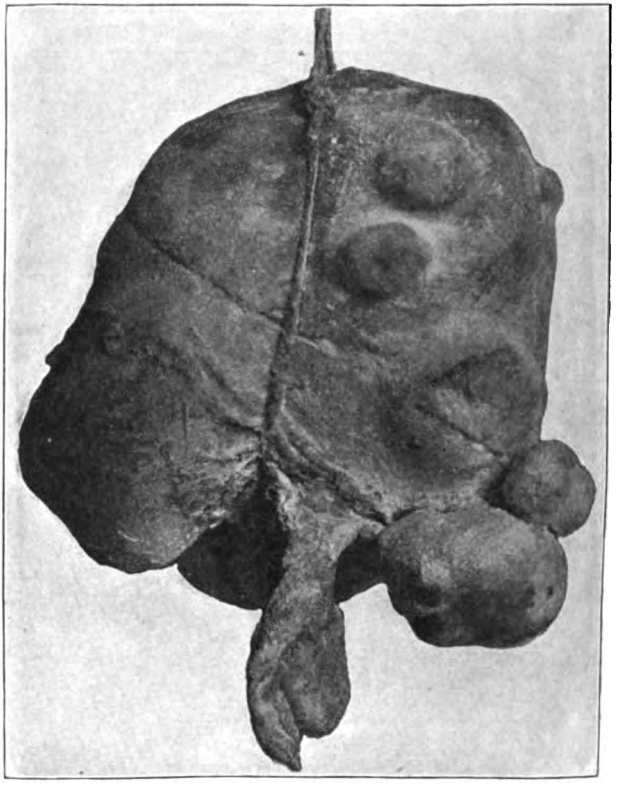


Fig. 8.—Intraligamentary fibroma, seen from the side.

uremia, the administration of caffeine, nitroglycerin, and sparteine freely, resulted within twenty-four hours in re-establishing the urinary excretion, and the danger was over. The temperature did not remain below 100° until nine days had passed. The casts, which had become granular, did not disappear until the seventeenth day, and the albumin not completely until the twenty-seventh day. There were no abdominal

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symptoms at any time suggesting sepsis. A new lot of cumol chromicized catgut was used for the first time in the abdominal wound of this patient, and proved afterward to have been untrustworthy. There was oozing between stitches in the first twenty-four hours, and some bleeding above the aponeurosis. After skin healing had occurred it was necessary to drain this localized collection within the subcutaneous fat on the seventh day. The primary skin union did not break down. The wound did not become dry at the point of drainage for two weeks. This illustrates one of the disadvantages of the method of suture in layers, but the results of the intracutaneous suture are so absolutely perfect in the overwhelming majority of cases that the writer always employs it. Repeated examination per vaginam during convalescence failed to detect any sign of tenderness or other intra-abdominal complication. The patient was discharged well six weeks after operation, having been kept under observation and on a milk diet two weeks longer than usual on account of the nephritis.

The illustrations show the tumor as seen from below and as seen from the side. An inch measure is seen in the picture. A pin is stuck at the peritoneal limit of an intraligamentary nodule. A stylet is thrust into the uterine cavity. The tumor weighed four and three-quarter pounds, and consisted of twenty or more nodules, so distorting the uterus as to make its normal topography unrecognizable.

The case is of interest owing to the intercurrent attack of nephritis. The temperature was probably due to this cause, as it was extremely regular in its curve, being taken every three hours, antedating by four days the wound irritation and largely subsiding before this appeared on the seventh day. The bowels moved freely, without difficulty, from the second day on, and no evidence of sepsis could be detected. The prompt recovery of the patient is an indication that the temperature was not due to general infection. Although the urine was negative at the examination before operation, it must be considered as probable that some nephritis had previously existed.

3727 CHESTNUT STREET.

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SUPRAPUBIC CYSTOTOMY FOR FOREIGN BODY.

BY

E. J. WHITEHEAD, A.B., M.D.,
Columbiana, Ohio.

AN unmarried woman, 24 years old, had been under treatment for several months for cystitis. Not long before I saw her, her physician had discovered a vesical calculus. This was confirmed by the passage of several fragments of the stone.

She was in a very low condition, suffering great pain, sleepless, emaciated, hysterical, bedridden. The urine was strongly ammoniacal and contained pus and blood. Her temperature averaged about 100°.

With Bigelow's lithotrite an attempt was made to crush the stone. After washing out the fragments, and on introducing the finger through the easily dilated urethra, a foreign body was found. It seemed to be about the size of a lead pencil and was fixed immovably in the bladder.

A few days later suprapubic cystotomy was done as follows: After carefully cleansing the skin as for laparatomy, a vertical incision an inch and a half long was made in the median line, extending upward from the upper margin of the pubic bone, cutting down to the bladder and exposing it throughout the whole length of the wound. Some room was gained by making a short transverse wound parallel to the bone. As much iodoform gauze as possible was packed into the wound, which was then covered with aseptic dressings.

Four days later, after time had been given for granulation to take place, the dressings were removed and an opening was made into the bladder, first passing a strong silk ligature through the bladder wall to keep it in place. The foreign body, which later was found to be a hard-rubber syringe nozzle four and a half inches long, was so firmly embedded in the bladder wall at either end that it was necessary to cut it with bone forceps and remove the pieces separately.

A siphon arrangement giving constant drainage was employed for three days. Thereafter the bladder was washed out daily with weak solution until the opening closed. Within three weeks the wound had entirely healed.

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CESAREAN SECTION.[1]

BY

GUSTAV A. FENSTERER, M.D.,
Floral Park, Long Island.

ON the morning of January 10, 1898, I was called to attend in labor Mrs. S., Ipara, age 26; was informed that labor had begun about 7 A.M., it being then 9:30 A.M. On examination I was surprised to find an internal conjugate of less than two inches. Making a diagnosis of an extremely deformed pelvis, I informed husband and parents of nature of dystocia; advised removal at once to Nassau Hospital, in the meantime asking Dr. Lanehart to see case with me. Dr. Lanehart kindly and promptly responded and agreed with me in every detail. Patient was then in full labor; had violent uterine contractions every three minutes, fetal heart sounds being faintly discernible. Patient was admitted to hospital at 4:30 P.M.; labor pains full and regular; patient beginning to show signs of exhaustion; anesthetized and ready for operation at 5:30 P.M. Patient was then fully examined by Drs. Ludlum, Lanehart, Hutcheson, and Mann, and Cesarean section elected.

Assisted by Drs. Lanehart, Ludlum, Hutcheson, and Mann, the abdomen was opened from one and a half inches below ensiform cartilage to one inch above symphysis; uterus brought out of abdomen and ligatured; intestines walled off by hot sterilized towels; both ovaries removed by request of patient and her family. The uterus was then incised anteriorly, incision being just long enough to permit removal of child. Found placenta adherent anteriorly; child and placenta rapidly removed; child resuscitated by Dr. Ludlum. After cleansing uterus of all shreds of membrane, seeing that cervix was well dilated, uterus was irrigated with hot solution of acetic acid, uterine incision closed with silk, returned; peritoneum inverted and abdominal incision closed *en masse* and treated like an ordinary celiotomy. Incision healed by fourteenth day, primary union having taken place. No uterine discharge at any time. Patient developed an abscess of both breasts, which retarded convalescence somewhat. Discharged February 27, 1898.

The pelvic measurements were the following: Distance between anterior superior spines, 25 centimetres; distance between

[1] Read before the Queens County Medical Society, March 2, 1898.

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crests of ilium, 30 centimetres; distance between trochanters, 30 centimetres; Baudelocque, 20 centimetres; distance between centre of pubes to centre of sacrum on right side, 17 centimetres; on left, 15 centimetres, showing a lateral deformity. Patient has had hip-joint disease, femur of left side being ankylosed. There is also a slight curvature of spine, lumbar, left leg being four inches shorter than right one; bearing weight of whole body while bones were soft has evidently caused the deformity. The features in the case are the almost normal external measurements; the anteriorly adherent placenta; failure of fetal head to engage at pelvic brim; child weighed nine pounds.

CORRESPONDENCE.

OPERATION FOR THE RESTORATION OF THE URETHRA, AND FOR THE CLOSURE OF A VESICO-VAGINAL FISTULA INVOLVING THE NECK OF THE BLADDER.

To the Editor of The American Journal of Obstetrics, etc.

Dear Sir:—I desire to add the subsequent history of the case of operation for the restoration of the urethra and for the closure of a vesico-vaginal fistula involving the neck of the bladder, which was reported in the March number of The American Journal of Obstetrics.

This patient returned home apparently soundly healed and was able to retain urine for four hours. Shortly after her return home she wrote to me that her urine was escaping constantly, and again consulted me for examination. A small fistula was found just at the internal orifice of the urethra. This undoubtedly was produced by lateral traction on the restored urethra. This traction was brought about by the healing of the lateral incisions which were made to relax tension at the time of the operation. This experience further illustrates the intractable nature of such cases. It adds another to the cases reported by Emmet in which the line of union gave way some time after apparent cure. It is my purpose to attempt the restoration of the urethra by the formation of flaps, and I hope to report the results thus secured.

Very respectfully yours,

Charles P. Noble.

1637 North Broad street, Philadelphia,
April 6, 1898.

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STATISTICS OF ABDOMINAL SECTION IN AMERICA: MR. TAIT'S MISTAKE.

To the Editor of The American Journal of Obstetrics, etc.

Dear Sir:—I have observed in numerous medical journals a communication from Mr. Lawson Tait, of Birmingham, in which he comments upon the address of Dr. T. Gaillard Thomas which appeared in the forty-first annual report of the Woman's Hospital in the State of New York. Mr. Tait may not be familiar with the best published results of American abdominal surgery, and therefore may not know that a mortality of from twenty-five to fifteen and three-hundredths per cent cannot be fairly set forth as a fair index to the quality of the work done by abdominal surgeons in America. Mr. Tait seems fond of repeatedly using the expression "murderous mortality," and by its use in this communication would create the impression that a high mortality is the rule in America and that a low mortality is the rule in England, at least in that part of England about Birmingham.

An examination of perfectly available and adequate statistics would show, first, that this inference of higher American mortality cannot be sustained by the facts and that it is therefore unjust. Hospitals in Chicago, Baltimore, Philadelphia, New York, Boston, and other cities will show results quite as favorable as can be shown in Great Britain or anywhere in Europe. Even the boasted statistics of the Birmingham and Midland Hospital for Women, which, according to Mr. Tait, are five or six per cent and have been secured, without antiseptics, by *British soap* on *British soil*, are no more remarkable in America than they are in Birmingham. The claim of Mr. Tait that his results are gained without antiseptics is substantially untrue and unwarranted. Every one recognizes in soap the most valuable of all antiseptics.

I submit whether it is just or wise to condemn, even by inference, the surgeons of a nation by an *ex-parte* statement.

1617 Indiana avenue,
Chicago, Ill.

E. C. Dudley.

[As some of our readers may not have seen the letter in question, we reprint on page 624.—Ed.]

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195 NEWHALL STREET,
BIRMINGHAM, 14th December, 1897.

STATISTICS OF ABDOMINAL SECTION IN AMERICA.

SIR:—I have just had sent to me a copy of the forty-first annual report of the Hospital for Women in New York, containing an address by Dr. T. Gaillard Thomas, the greater part of which purports to answer some animadversions which are alleged to have been made concerning the results of the work in that institution. At the conclusion he puts to the critics *Shylock's* question, "Are you answered?"

I have not been one of the critics, and only because the facts never came under my notice; but on their behalf, and on behalf of suffering humanity, I say to Dr. Thomas that they are not answered, but that, on the contrary, he makes out a most deplorable state of matters.

He puts forward a group of figures which show that in seven large selected hospitals in America the results of abdominal section run from 25 per cent in Boston City Hospital down to 15.03 per cent in his own institution. Of this collection of statistics I have only two things to say: that the whole thing is deplorable and must be remedied, and that the mortality in the New York Woman's Hospital is "murderous," as Matthews Duncan used to put it.

He certainly does not make the matter any better by pointing out that during a period of thirteen years the mortality of his hospital has been 22.43 per cent, and that this triumphant result has been due to the introduction of "antisepsis, the sheet anchor of the surgeon." This makes me more than ever thankful that I discovered the fallacy of this so-called antiseptic craze early in my career.

I enclose with this letter a copy of the twenty-third annual report of the Birmingham and Midland Hospital for Women for 1893, and I select this year for three reasons. The first is that it was the first year in which no work was done by myself and the bulk of it was done by two of my former assistants, and because it was an exceptionally bad year.

As to the statistics themselves, let me say that, like those of the New York Hospital for Women, in Dr. Thomas' own words, "the surgical staff of this hospital has absolutely nothing to do with the making of its statistics." Each case is entered by an officer responsible to the lay committee, and each fatal case is investigated by a special pathologist altogether independent of the operating staff. At the end of each year each operator has to defend his facts before his colleagues on a committee upon which also sit the chairman and secretary of the managing committee, and a perfect audit is made and signed. This document is published with a table upon which every case is entered under the distinguishing initial of its own surgeon, and with such details that any case can be easily identified. Any cooking of the statistics is an absolute impos-

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sibility, and only the most trivial errors have ever been detected.

In 1893 the abdominal sections numbered 176 (against 153 in New York of 1894), with a mortality of 6.2 against 15.03 in the New York Woman's Hospital.

Another table is given of 1,350 cases of abdominal section performed almost entirely by Dr. Savage and myself from 1884 to 1893, with 75 deaths, a mortality of 5.5 per cent.

During these years I did all my work on plain soap and water, having abandoned every trace of the varying absurdities of Listerism two years before. Dr. Savage followed Lister in fashion of his own, varying from time to time. The work was fairly well divided between us, as also was the mortality; and with the most careful reckoning of the figures, the verdict against Listerism must be, in Scotch fashion, "not proven," for with its complete absence my results were no worse, and with its partial presence Dr. Savage's were no better.

What can Dr. Thomas have to say to this?

I have only to say that his results show that there is something radically wrong with his hospital, and that the medical profession of America, advancing as it is beyond the progress of our art in all other countries, cannot afford to let matters go on as they are.

If I may answer in one word the question which will, of course, follow what I have said, What is the cause of your success? I say emphatically the absolute segregation of our patients and close attention to every detail constitute the whole of the mystery.

That there is an inevitable mortality in abdominal section I think is certain. That two men working in the same place, with the same material, should bring it down during ten years to 5.5 per cent in a continuous consecutive series of 1,350 cases, shows that the inevitable mortality is pretty nearly reached. That a removable mortality of more than three times that amount should be allowed to remain as the minimum to be reached in America cannot be admitted for a moment.

That even the low mortality we have had in Birmingham is probably not the inevitable mortality is, I think, almost proved by a little figure-twisting. For if we take out four bad years, 1884, 1889, 1890, and 1893, we find 553 cases with a mortality of 8.5 per cent; but in six good years, 1885, 1886, 1887, 1888, 1891, and 1892, we had 797 cases with a mortality of 3.5 per cent. I think this latter is nearer the inevitable, and that a higher mortality than that is due to causes entirely removable. All such causes ought to be earnestly sought for, and removed at any cost.

I am, yours truly,

LAWSON TAIT.

To JOHN E. PARSONS,
President of Board of Governors,
Woman's Hospital, New York.

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PUERPERAL SEPSIS.

To the Editor of The American Journal of Obstetrics, etc.

Dear Sir:—Of all the troubles that confront the general practitioner and that bring sleepless nights and premature gray hairs to his head, the condition designated by the laity as "blood-poisoning" after confinement stands first. Even if the greatest care has been taken to exclude any possible source of infection, so that no one connected with the case can be truthfully charged with negligence, the condition is one that in a small town or country community leaves a greater or less stigma attached to the attending physician.

The object of this letter is to show what, to my mind, is most essential and most frequently neglected in the treatment after the germs have begun their work. On Friday, March 25, 1898, a man came into my office and requested me to go with him to see his wife. Finding he had not discharged the physician in charge, I told him I could not take the case, but I would be glad to see her in consultation with the attending physician. Saturday afternoon I went to see her in company with Dr. Q. She had the following history: Primipara, age 24, confined March 14, 1898, with twins. The first, a boy weighing three pounds, was born without trouble; the second, a girl, weight seven pounds, came seemingly with one hard pain, producing an almost complete tear of the perineum. The torn parts were cleansed, dried, and sutured, the patient doing well for three days, when she had a chill and other symptoms of absorption. The doctor was called, cleansed the parts, cut the sutures in the perineum, curetted and washed out the uterus with lysol, and prescribed a good sustaining treatment. He personally superintended intrauterine irrigation four times a day, but there was no abatement of the symptoms, so another practitioner was called in, and, after examining the case, concurred in the treatment and went his way. When I entered the room I was confronted with the most cadaverous-looking woman I have seen outside of the dead-house. There was general sepsis, with phlebitis implicating some of the small veins of the *right arm* and *right leg*. There was no lymphan-

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gitis, and the uterus was well contracted and not particularly tender. Temperature 102½°, pulse 124, respiration 26. *There was quite a profuse discharge of yellowish, purulent matter from the external os, which was patulous, but the internal os was firmly closed, so that it required considerable manipulation to insert a small-sized uterine sound. The uterus was retroverted, so that the fundus rested on the lower portion of the rectum, and the cervix was directed toward the base of the bladder.* Now, here was the key to the situation—a pus-forming infected cavity, so situated as to retain everything. I directed the uterus to be put in as good position as possible, the internal os to be dilated, and a small iodoform-gauze drain inserted and kept there until all danger should be past. The attending physician agreed to follow my directions, but I find he did not do so, as he said the manipulation necessary to open the canal and to keep it open tired the patient, consequently she continued to absorb, and died April 2. I firmly believe that had *perfect* drainage been kept up she would have recovered. In such cases I always apply Churchill's iodine to all abraded places at each dressing, and once a day it is applied to the whole mucous lining of the cervical canal.

I have had it said to me that it seemed almost impossible in the later stages to keep the os patulous. I have had no trouble in that line, as I have an irrigating sharp curette the cutting edge of which I have somewhat dulled, and find by directing sterilized hot water through it, and by using its edge to remove pus and mucus from the inner side of the internal os, that the whole canal will remain open. The object of this paper is to give my idea of what, to my mind, is usually overlooked, viz., the thorough drainage and disinfection of *all* absorbing surfaces, particularly the intrauterine. Most practitioners will tell you, as did this one, that they have thoroughly irrigated the whole cavity of the uterus, while, in fact, they have never gotten beyond the external os, which in this case was made plain to me by the fact that although the doctor said he had given an intrauterine douche two hours before, it was then almost impossible to insert a small sound. Keep the canal open with gauze, irrigate with sterilized water, apply Churchill's iodine to abraded surfaces, and you will have no absorption.

E. A. CRAIN.

VAUGHN BLOCK, GREAT FALLS, MONTANA.

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TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA

Stated Meeting, March 17, 1898.

EDWARD P. DAVIS, M.D., *in the Chair.*

DR. GEORGE ERETY SHOEMAKER reported cases:

(1) EXTRAUTERINE PREGNANCY. (2) INTERSTITIAL FIBROMA; HYSTERECTOMY; RECOVERY. (3) INTRALIGAMENTARY FIBROMA; HYSTERECTOMY; RECOVERY.[1]

DR. JOHN B. SHOBER.—I have brought with me to-night two specimens which may be of interest as illustrating the fact that at times we cannot always be sure of our diagnosis in extrauterine pregnancy. One is an interesting example of extrauterine pregnancy where the diagnosis of pus tubes had been made and upon operation extrauterine pregnancy was found. The other specimen is from a woman I operated on to-day, in whom I made the diagnosis of extrauterine pregnancy and found pus tubes.

The case I operated on to-day is a young woman, 17 years of age, who married last September and missed her October period. In November she had a flow at the regular menstrual time, which was accompanied by very severe pain and much more profuse than had been her habit. The pain was intense. She saw her December and January periods, and they were both characterized by the same symptoms, and early in February she menstruated again and the flow lasted three weeks. With each period she suffered a great deal of pelvic pain. She was sent to the city for an operation, her physician supposing that she had had a miscarriage and anticipating that nothing more would be necessary than a curettement. But upon examination I found a mass upon the right side that was continuous with the cornua of the uterus and about three-quarters of an inch in diameter; the left side appeared normal. I supposed I was dealing with a case of extrauterine pregnancy, but found pus tubes on both sides. The abdominal ostia were closed, cheesy material at the end of the left tube, and the ovary and tube intimately adherent together and close up to the uterine cornua.

In the case of extrauterine pregnancy I found a gestation sac, about the size of a small walnut, lying between the extremity

[1] See original article, p. 613.

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of the left tube and the ovary. A small rent in it was plugged with blood clot, and a recent clot was found in Douglas' pouch. The case presented no symptoms of pregnancy, but had presented all the symptoms of pus tubes.

DR. SHOEMAKER.—As to the feasibility of attacking small growths from the vagina, I would like to have the views of the members of the Section.

DR RICHARD C. NORRIS.—While in Berlin I saw a number of fibroids and pus tubes that were removed by vaginal hysterectomy, and I had the opportunity of watching the convalescence of these patients; and I was very favorably impressed with the technique and immediate results of this operation.

For Dr. Shoemaker's first case, it would have been a very simple matter to have split the uterus in half, clamped or ligated the broad ligaments, and removed the tumor and uterus without the disadvantages of an abdominal operation. The question of attacking larger tumors by the vagina is one, I think, of a great deal of interest, and I was very much interested to see that men who are the experts in Berlin in vaginal operations do abdominal hysterectomy for larger fibroids. The vaginal operations for pus tubes and for extrauterine pregnancy offer a field for considerable discussion. In Vienna I saw an operator attempt the vaginal operation for extrauterine pregnancy that had ruptured. It was his intention to remove only the involved side, but the bleeding was so profuse that clamps or ligatures were useless, and it was necessary to do hysterectomy and remove the other tube and ovary to control the bleeding—a complication which would not arise in operation by the abdominal route. I believe there is a field for the vaginal operation in carcinoma, in certain cases of pus tubes and fibroids, and in conditions of minor pathological changes in the pelvis. In my judgment the vaginal operation for certain classes of cases offers advantages not sufficiently appreciated in America.

DR. G. M. BOYD.—I have recently had two ectopic-gestation cases. They were sent late to the hospital, some one month or more after the primary rupture, and this caused difficulty to make diagnosis. One case was supposed to have been a fibroid tumor, the other an old inflammatory tubo-ovarian case. Both were operated upon by the abdominal route, and in both cases extensive inflammatory adhesions had taken place. Both were the frequent form of ectopic gestation called by Bland Sutton tubo-abortion. In one case the adhesions were excessive. It called to my attention particularly the lack of wisdom in attacking some old cases of ectopic gestation by the vaginal route. There was an extensive bowel adhesion which demanded careful dissection, which, after a great deal of difficulty, was liberated. I believe the treatment of that case by the vagina would have been a very serious procedure.

DR. JOHN C. DA COSTA.—I think Dr. Shoemaker showed a great deal of judgment in attacking that tumor from above. Here was a woman, single, with a vagina that had never been

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distended, a tumor that he had very great difficulty in removing. The vaginal route is particularly adapted to small tumors and cancer, especially when you do not want to soil the peritoneum if you can help it. For fibroids, even as small as that, the security and rapidity with which an abdominal operation can be done, and the freedom from risk of hemorrhage which most of us have seen, recommend that route.

In regard to diagnosis of extrauterine pregnancy, it is a very hard thing to make. Dr. Shober has told us to-night how mistaken we are apt to be. I think the mistake of pus tubes for ectopic gestation, and *vice versa*, is the most common. There are two or three symptoms, however, which generally guide us very well. One, I think, is the pain: it is a pain unlike any other pain. Another is the irregularity of bleeding that may come on between or at the menstrual periods. It may be an apparent menstruation, a free discharge, or mere leakage. These symptoms, with a steady growth of the tumor to one side of the uterus, generally warrant us in making a diagnosis of extrauterine pregnancy.

DR. SHOEMAKER.—In regard to the diagnosis of extrauterine pregnancy, I would say that this was a case in which there was not the slightest difficulty, as it presented the classical symptoms, and after seeing the case I was able to telephone my friends to come to the hospital to see an operation for extrauterine pregnancy.

I was interested in the discussion of Dr. Norris in regard to the vaginal enucleation of small fibroids. This route was not chosen here because this vagina was so very small, ether being required to make ordinary examination, and because from locking of uterus in the pelvis the exact relations were not at all demonstrable under ether. I feared hemorrhage, and, as she had been almost dead from hemorrhage as it was, I chose the route which would give the greatest certainty and the least risk of hemorrhage. The brilliant later result has amply justified the course which was adopted. I am sorry there was no discussion of the point of differential diagnosis between acute nephritis and acute sepsis. It may be an exceedingly anxious one for two or three days, and I reported this case because I thought it might throw possibly some light on the subject. Dr. Griffith, who saw the case on consultation, agreed with me that the regular temperature was due to nephritis, particularly as it antedated what superficial wound irritation there was, and so promptly disappeared on the re-establishment of kidney function.

DR. E. P. DAVIS spoke

UPON THE CLEANSING OF OPERATING ROOMS, WITH THE EXHIBITION OF A FORMALDEHYDE DISINFECTOR.

It is not my purpose to exhibit any special form of apparatus for disinfection, but rather to call attention briefly to some practical considerations for cleansing operating rooms. It is the experience of all of us that at times our operating rooms, of

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whatever size, seem to become non-sterile, and that the occurrence of pus or possibly bad results we are apt to ascribe to the bad condition of the room. Since the discovery of enamel paint it is perfectly possible in old buildings, by the use of this paint well applied, to make ceiling, walls, and furniture of any operating room capable of very thorough cleansing by ordinary means—that is, by washing with soap and water, followed by the application of antiseptic fluids. I recently had occasion to have cultures made from the delivery room of the Jefferson Maternity, in which a normal confinement had been followed by the customary scrubbing. I wished to ascertain what the condition of the room was after this routine procedure. There had been no high temperature following obstetric operations, but the cultures were made to see how applicable and efficient such methods of cleansing are. Dr. Harris, pathologist to the Jefferson Hospital, very kindly exposed culture plates and was able to obtain but a very few growths of innocuous moulds, so that it may be said to be possible to use a room for confinements, with patients brought at times in ambulance, and to keep it in a very cleanly condition by scrubbing. The same would be true of any operating room devoted to abdominal surgery.

There arises, however, the question of disinfecting a room which we fear is infected. We are familiar with the old sulphur method which has been our principal reliance in the past. The use of formaldehyde has been carried on extensively abroad. Doty, Health Officer of New York, has made numerous trials. Harrington, at the Boston City Hospital, has extensively experimented with it, and, following his suggestion, the authorities of the Boston City Hospital regularly disinfect with formaldehyde. The apparatus I show consists of an alcohol lamp with six wicks, placed in a very simple but firm tray and placed beneath an iron shield in the summit of which is a cup surrounded by wire. The pastilles of formaldehyde are furnished by the hundred and cost, in lots of five hundred, seven-tenths of a cent each, which is expensive. For the ordinary operating room (I use the term ordinary as applied to the average operating room in a hospital devoted to gynecology and obstetrics) at least one hundred of these pastilles would be required to disinfect the cubic contents of each room. This would be a cost of seventy cents to one dollar. The pastilles are placed in the cup, the room is thoroughly closed by plugging, and the alcohol lamp ignited and the room shut up. If disinfection begins at 8 o'clock in the evening, at 6 or 7 the next morning the room may be opened, and one hour from that time it may be used. Dr. Harris found by exposing culture plates that even such forms of germ life as escaped scrubbing were destroyed with rapidity. Harrington found, on placing streptococci, anthrax, and other virulent germs in apparatus in clothing and then using formaldehyde, that very excellent results were obtained. There is a cheaper way of disinfecting by the use of formochloride. Formaldehyde fumes, while they are almost insufferable, penetrate but slowly into adjoining apartments—an important point

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when we remember the annoying odor when sulphur is used, no matter how careful the method of closing the room. I may summarize my observations as follows:

The importance of supervising the construction and finish of our walls, furniture, etc., in operating rooms in new buildings. Where we have to deal with old buildings the walls should be enamelled, and this should be repeated yearly or every six months; we are then in a position to keep such rooms sterile with the service our nurses and scrubbers can give us.

We have in formaldehyde at the present time the most efficient, the quickest, and the best disinfector for rooms.

There is upon the market what is called a disinfecting lamp, designed for small apartments, which is not sufficient for operating rooms, as it is intended for the ordinary bedroom.

The experiments that have been made regarding the sterilization of catgut by formaldehyde may be mentioned in this connection. Formaldehyde is an efficient surface disinfector, but it is useless to attempt to sterilize the interior of catgut by formaldehyde, if some experiences may be accepted. Attempts to sterilize catgut by boiling the gut in formaldehyde have been ineffectual according to some reports. Others say they have succeeded perfectly. Its value as a disinfector for suture material is not yet clearly proven.

DR. B. C. HIRST.—I have been using the formaldehyde lamp, shown by Dr. Davis, in the University Maternity all winter. All the lying-in rooms in which there has been any fever are always treated in this manner. This is the best form of lamp for formaldehyde disinfection. I *think*, upon the market. I was much interested to hear what *Dr. Davis* said about formalin catgut. I have been using it since *last spring*, and I *think* I have had a uniformly sterile lot of gut from the method I employ. My plan is to soak catgut in benzine to get all the fat out of it; then to soak it in sterile water for twelve hours in order to make it as absorbent as possible; then to immerse it in a five per cent solution of the commercial forty per cent solution of formaldehyde for some fourteen or fifteen hours; then stretch it on a frame, as Edebohls recommended in the preparation of his chromicized gut, for three or four days to thoroughly dry it out, soaking it next in juniper oil over night to make it more flexible, and finally boiling it in alcohol at 240°. The method sounds complicated and it takes a good deal of time, but is very little trouble. I have had some of this gut examined and had negative results bacteriologically from it. This is a subject of very great practical importance to us all. If formalin gut can be made sterile it is an almost ideal suture material, having just the durability that we require. I find in all plastic work in the vagina it lasts a good two weeks. Three days later it is either gone altogether or else can be lifted off the vaginal surface with forceps. It is, therefore, far superior to chromicized gut, which lasts much too long. I had a disagreeable experience a year or more ago after using Edebohls' method of preparing gut. For some six months I was kept busy taking out resistant sutures from patients on whom I had

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operated for lacerated vagina, cervices, etc., so that I have given up chromicized gut, excepting in an Alexander's operation where it can be thoroughly buried and we welcome its excessive durability. Formalin gut is, as far as I know at present, sterile, and it seems to possess all the qualities required of catgut, except that it is a little more brittle than any other gut which I have used. It is more apt to break when the second or third knot is put in it. I have thought lately that I have overcome the brittleness by soaking in juniper oil, but I have only used that modification in two or three cases lately and therefore cannot speak positively on the subject.

DR. G. E. SHOEMAKER.—Any method of preparation by formalin which involves after-handling of the gut—for instance, stretching on a frame by the hands and drying in the air, where it is more or less liable to get dust upon it—vitiates the universal applicability of the method; and if after this the gut is boiled under pressure in alcohol, a method which has stood a very careful and searching test, there is nothing to indicate that the formalin is the active agent in sterilization. The method of Dr. Edebohls, which consists in sealing chromicized catgut in two separate containers in alcohol, then boiling for six hours at a temperature of 212° in an Arnold sterilizer, has stood a searching test, and that is a method which is not open to the objection of handling gut after it is sterilized. That is the weak point in many methods.

DR. E. P. DAVIS.—As regards the sterilization of gut in the experiments I mentioned which were not successful, the main reliance was placed upon formaldehyde. In Dr. Hirst's method the alcohol and other agents employed might be sufficient without the use of formaldehyde at all, but in the method I described formaldehyde was made the active disinfecting agent and the results were not satisfactory. Experiments are now on foot, which are not completed, which show that formaldehyde has this important property, that it alters the tensile strength of catgut less than any other sterilizing agent. Dr. Hirst has observed this clinically. Whether it can by this method be made perfectly sterile is a question which must at present remain *sub judice*.

TRANSACTIONS OF THE GYNECOLOGICAL AND OBSTETRICAL SOCIETY OF BALTIMORE.

Meeting of October 12, 1897.

The President, WILMER BRINTON, M.D., *in the Chair.*

The annual election resulted in the choice of the following officers for the ensuing year: *President*—Dr. L. E. Neale. *First Vice-President*—Dr. G. Lane Taneyhill. *Second Vice-*

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President—Dr. W. W. Russell. *Secretary*—Dr. J. Whitridge Williams. *Treasurer*—Dr. J. M. Craighill.

Meeting of November 9, 1897.

The President, L. E. NEALE, M.D., *in the Chair.*

DR. WILLIAM M. POLK, of New York, addressed the Society on

THYROID EXTRACT AND FIBROID TUMORS.

THE PRESIDENT.—I am sure I voice the sentiments of those present and of the profession at large in extending to Dr. Polk our sincere thanks for this highly interesting and instructive paper.

I will call upon Dr. Osler to open the discussion, not because I would suggest that he has fallen from his high state to that lowly one of treating the much-abused organs of generation, but because I know he has had considerable experience with the use of thyroid extract.

DR. OSLER.—Mr. Chairman, I am in a somewhat embarrassing position, for I do not think that I was ever before asked to take part in a gynecological discussion.

This, however, has to do with internal medicine, and I may say, in fact, that Dr. Polk is a physician practising gynecology. There are one or two points of interest bearing upon this subject, and there are several physiological experiments showing the effect of thyroid extract upon the generative organs. Why gynecologists have not brought this out as a cure for sterility I do not know.

As to the treatment of myxedema, the majority of the cases I have seen were past the menopause, but in one or two younger persons (one I saw in the Hopkins) the menstrual functions have been restored. Reasoning from analogy, one would not suppose that thyroid would have any effect upon fibroids. If you take a large number of cases which have marked fibroid changes, as in cases of scleroderma, there is very little change by treatment. I have had several cases under observation, one of which had thyroid for more than a year and a half continuously, and two others have been treated very thoroughly, but without any change whatever. Still there are several other diseases, psoriasis and one or two other skin diseases, that have been benefited.

I do not think you need fear any trouble from prolonged use of the extract. I have one patient, a young woman with goitre, who has taken it for more than two years with no ill effect. You can watch its effect very easily, and if there is any increase in the rapidity of the pulse it is a very easy matter to stop the medicine for a few days. But as a rule, even over a very prolonged period of time, the thyroid extract is very well borne.

Here I would like to mention that there is in all probability

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a class of cases which we learn to recognize as thyroid inadequacies, cases of malnutrition in the organs, which are very much benefited by the use of the thyroid extract. On the other hand, cases have been described as border-line cases by the French, where there is possibly a defective quantity of secretion of the thyroid, and in these the thyroid extract seems to be beneficial, as it supplements the natural secretion.

I have listened to this paper with pleasure, and feel sure that it is a communication of value; and it is certainly a satisfaction to feel that the remedy can be used without danger.

DR. I. E. ATKINSON.—I have nothing to say, except that my experience confirms what Drs. Polk and Osler have said. I have had patients under the thyroid for a long time without any disadvantage. One point of importance is that the cases in which there is a pronounced deficiency of thyroid secretion are the ones most benefited, and it may not be beneficial in the other class of cases. I think there is no difficulty in watching it and stopping it when danger seems to arise.

DR. T. S. CULLEN.—I think the diminution in pain and the cessation of the hemorrhagic discharge during the treatment of fibroids was an interesting point in the paper. From Dr. Clark's experiments we have learned much concerning the blood supply of the myomata, and I have noticed that in cases of myomata the hemorrhage is probably due to mechanical action. Under normal conditions we have a periodic discharge of blood from the uterus every month, and on making a histological examination of the mucosa it is seen that the veins, both large and small, are very thin-walled, consisting practically of nothing more than a layer of endothelium. Accordingly very little tension need be exercised to produce hemorrhage. The fact that as the myoma diminishes in size we have cessation of the hemorrhage substantiates the idea that it has a mechanical origin.

DR. W. W. RUSSELL.—There is one point in regard to the treatment which I should like to have made a little more plain. The author has said that in all submucous cases it would be preferable to proceed to operative treatment. In all these cases you have hemorrhage, and I did not quite understand the reason for not using the treatment here.

DR. POLK.—The reason that I advocate operation instead of the thyroid in submucous fibroids is that they are easily gotten rid of by a comparatively simple operation. While I am fully prepared to accept the suggestions of Drs. Osler and Atkinson that there is no ill result following the prolonged use of the remedy, I made the suggestion that cases that can be so easily operated upon as the submucous variety should be left to operation in order to avoid the prolonged use of any drug.

DR. GEORGE W. DOBBIN reported

A CASE OF SYMPHYSEOTOMY,

and exhibited the patient.

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DR. WILLIAMS.—The case which Dr. Dobbin has reported was one which required the operation. I examined the case myself in the middle of July and can verify his statements as to the pelvic measurements. He is to be congratulated upon the results obtained, not only from the operative standpoint, but for saving the child under the peculiar circumstances of the case. The cord was prolapsed when he first saw the case, and you all know what small chance of life these cases offer for the child.

When we come to consider what cases require symphyseotomy we meet with a difficult point. It is generally stated that a conjugata vera of from six and a half to eight centimetres will require symphyseotomy, but that is questionable. Pelvimetry does not give us accurate information of the size of the child's head nor of the force which the uterine muscle may exert, and therefore, when we find a certain diameter, we can only say that the pelvis is thus and so, and that there are other conditions equally important which we cannot determine in advance, and so we cannot say that a woman with this or that diameter requires the operation. When it goes below six centimetres Cesarean section is required, but when we take the next class of cases in which symphyseotomy is said to be indicated we take up a serious problem. We find that many women with a diameter of seven centimetres and a small child will have spontaneous labor, and a woman with a small pelvis, very slightly larger than this one, may get through with a high forceps operation. I would, therefore, say that we must consider these matters very carefully, and we are not justified in rushing to symphyseotomy simply because the woman has a contracted pelvis, since, if the pelvis is above seven centimetres, the indication is not sharply marked, and when it goes below that we encroach upon the field of Cesarean section.

I do not agree with the teaching of some, especially Pinard, who do not believe in the application of forceps to a head not engaged in the pelvis. He has done in his hospital eighty-six symphyseotomies, with a very bad mortality, having lost six per cent of his women. He says most of the cases were already infected, that in some forceps had already been tried, and states that we should not make use of the forceps but proceed at once to operate. I do not agree with that, for I feel that we should apply the forceps, doing it very cautiously, and if the head follows after a few tractions, well and good, but if it does not we can take off the forceps and resort to symphyseotomy.

I brought with me the report of the convention at Moscow in which Pinard's cases are reported. Seventy-seven of his cases belong to the class that is symmetrically contracted, and in these only five present a conjugata vera equal or less than the case here before us, whereas seventy-two present a larger conjugata vera than this; and had we done symphyseotomy at the Hopkins on the same indications we should have done seven or

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eight in the past year, whereas this is the only one we have thought it necessary to do.

DR. T. A. ASHBY.—I believe the operation is one that has come to stay, and if the indications for it are present I believe it will give good results. As has been pointed out by Dr. Williams, other things than the pelvic measurements are very important. I have had an instance recently where this was shown very clearly. A woman presented herself with a generally contracted pelvis and a child which was apparently unusually large, and hence presented all the indications for symphyseotomy. I had the woman prepared aseptically and intended to try forceps and, if necessary, do the operation. The forceps was applied, and, without any great amount of force, I succeeded in delivering the child without any mutilation whatever, and the woman and child both made a good recovery. I believe we should try first the forceps, and throw it aside when we find that undue traction is necessary.

DR. L. E. NEALE.—I want to congratulate Dr. Dobbin upon his results and thank him for his report. What I would have said has been better said by Dr. Williams. I simply want to throw out a word of caution as to the pelvic measurements. It has occurred in my experience that in a given pelvic measurement of, say, seven centimetres conjugata vera, one woman may have a perfectly natural spontaneous delivery, whereas another will require operation. I have had one experience where I had prepared to do a symphyseotomy, but arrived at the hospital to find that the woman had delivered herself. Whilst we cannot rely upon pelvic measurements entirely, this should not diminish the importance of this method of examination. It seems to me the preliminary examination of an obstetrical case is of extreme importance, and I fear is not generally thoroughly carried out. If all cases were more carefully examined when first seen we should be better able to cope with whatever emergencies might arrive.

I am satisfied that our European confrères have gone to the extreme, and if we accepted their observations upon pelvimetry alone there would be an enormous increase in the number of operations in our clinics.

After passing a vote of thanks to Dr. Polk the Society adjourned.

Meeting of December 24, 1897.

The President, L. E. NEALE, M.D., *in the Chair.*

DR. J. W. WILLIAMS reported that the following-named gentlemen had consented to visit and address the Society: Dr. Joseph Price, of Philadelphia, in January, Dr. Barton Cooke Hirst in March, and Dr. Henrotin, of Chicago, in May.

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DR. WILLIAMS then read a paper on

RECENT CONTRIBUTIONS TO THE PATHOLOGY AND ETIOLOGY OF ECLAMPSIA,

and DR. NEALE followed with a paper on

THE TREATMENT OF ECLAMPSIA.

The treatment is still unsettled; the pathologist, rather than the clinician, may guide us.

Regarding eclampsia as due to a peculiar toxemia of pregnancy, the present tendency in treatment is to interrupt the pregnancy by rapidly emptying the uterus.

Dr. Neale's experience has been to rely upon therapeutic measures less, upon operative procedures more.

Treatment is considered under the two following heads:

1. Treatment of pre-eclamptic stage.
2. Treatment of eclamptic stage.

Pre-eclamptic.—Importance of thorough examination of urine, including quantitative estimation of urea, and recognition of prodromal symptoms of eclampsia—viz., symptoms of toxemia.

Milk diet is most important preventive treatment, aided by proper action of (1) skin, (2) bowels, and (3) kidneys.

(1) Pilocarpine is dangerous; hot baths are safe and effective.

(2) Saline cathartics, and occasionally calomel, are the best means of removing toxins by the bowel.

(3) There is no better diuretic in this condition than water.

In the presence of symptoms threatening convulsions, venesection (regardless of pulse, etc.), followed always by normal salt-solution transfusion, is the most positive prophylactic measure next to emptying the uterus.

This latter is perfectly justifiable *at any period* when the eclamptic prodromata progressively increase, and should not be delayed when the attack occurs.

Practically all cases do better after delivery (seven per cent maternal mortality).

Rapid cervical dilatation (Harris), rarely deep cervical incisions (Dührssen), followed by delivery, is preferable to slower methods.

Aid further elimination of toxins postpartum by working on (1) skin, (2) bowels, and (3) kidneys as above.

Eclamptic.—Bleeding followed by saline transfusion.

Do not wait for full, bounding pulse to bleed, but bleed anyhow, for we wish to remove a poison.

Transfuse, because we wish to restore cardiac tone, dilute and dissipate toxins, and favor their elimination by (1) bowels, (2) skin, and (3) kidneys.

Veratrum viride is opposed to present pathology of eclampsia and should not substitute venesection; it is never necessary and may be positively dangerous.

The same is true of nitroglycerin.

Chloroform is powerful for rapid and temporary nerve seda-

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tion, but should be very sparingly used, or entirely discontinued when effects of chloral have been produced.

Chloral is best given by rectum, forty grains at a dose. It is preferable to morphine, which should be employed where prolonged sedation is required by recurrence of convulsions or their prodromata.

In the eclamptic stage deliver as soon as possible and aid elimination as above stated.

DR. J. M. CRAIGHILL.—I would like to relate a case which I was to have reported at the last meeting of the Society last year, but owing to sickness in my own family was prevented from doing so.

Three weeks before her confinement I detected albumin in the urine, but it was in such small quantity that I concluded operative interference was not necessary. She was confined on the 1st of September, beginning to have pains at 3 A.M., and when I was called at 6 A.M. I found her in a nervous condition. The child was in a normal position. The limbs of the mother and the vulva were edematous. About 11 A.M. she complained of some headache, pain in the throat, dizziness, and had a flushed face. At 6 P.M. I returned, and on entering the room and speaking to the patient I noticed that she replied in a very peculiar manner. Within a few minutes she went into convulsions. I had no one to assist me but a monthly nurse. I prepared myself as aseptically as I could and began bimanual dilatation of the uterus. The os was only dilated to the size of a quarter, but was dilatable, and within a little while I was able to put on the forceps. By that time she had come out of the first convulsion, but soon had a second. I sent for the nearest physician, Dr. Randolph Winslow, who arrived after the second convulsion. Before he arrived I administered one-quarter grain of morphia with one-seventy-fifth grain of atropia. After consultation we decided to bleed the patient, and Dr. Winslow immediately did so for me, drawing perhaps a pint of blood. Two more convulsions took place, but they were not so severe as the first ones. The fifth and the last was the mildest, and took place just before the delivery of the child, one hour after the first convulsion. I had a ruptured perineum down to the rectum, which I sewed up at once. At 9 P.M. there was no urine in the bladder and the pulse was soft and compressible. I stayed with her all night, and she did not regain consciousness until the next morning, when her pulse was 120 and weak. She ran along with the peculiar pulse for several weeks, but went on to a pretty rapid recovery, and, six weeks after the birth of the child, was up and about the house. I examined the urine quite frequently and also had it examined microscopically. Traces of albumin and a few hyaline casts were present.

DR. B. B. BROWNE.—I have listened with a great deal of pleasure to the papers. My experience with blood-letting began early in my practice, about 1867. At that time it was seldom used. I had charge of the obstetrical department at the Alms-

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house at that time, and a strong, robust woman there had convulsions which kept up whenever chloroform was stopped. We bled her, taking over a pint of blood from the arm, and at the same time succeeded in delivering the child, and she had no more convulsions. Ever since that time I have been in favor of blood-letting for eclampsia. I tried pilocarpine and had some good results, but I think that blood-letting is the best method.

DR. H. A. KELLY.—I cannot add anything to what has been said so nicely, and so will only call attention to one practical point, which is that when manual dilatation is made, as the fingers cannot be so sterilized as to make it safe, I would suggest that we use the new finger stalls that are just coming into use. The tactile sense is scarcely interfered with by them.

DR. J. W. WILLIAMS.—In the books and in the ordinary directions for bleeding it is said that we should not bleed unless there is a full, bounding pulse, etc. I believe that in a great majority of cases where the convulsions proceed in spite of other methods of treatment, it is best to bleed whether the pulse is bounding or not.

There is one point about which a word might be said, and that is the manual dilatation of the cervix. The question comes up in some cases whether we shall try to dilate with the fingers, shall make crucial incisions, or resort to Cesarean sections. Where we have a very hard and resisting cervix—I had such a case recently—I felt that if I saw another case I should want to do a section rather than try anything else. I believe that in a small number of cases possibly the Cesarean section is the most conservative way to deliver a case.

DR. C. HAMPSON JONES.—The subject is of exceedingly great interest, and I would like to hear it further discussed. I must say I do not agree with the line of treatment suggested—that is, emptying the uterus whether full term has been reached or not.

Undoubtedly the emptying of the uterus does produce cessation of convulsions in a number of cases, but a large number of men may not perform this operation without considerable risk to the woman and child; and so long as the usual methods employed are generally successful in bringing the woman through the period of gestation, it is best not to resort to the emptying of the uterus except as the last means of treatment.

I have had five cases, in three of which I was director and in two secondary. The first case was a colored girl of 14, whom I saw in convulsions. I thought at first of emptying the uterus, but on making examination I found it already emptying itself. There was considerable bleeding at the time, but the convulsions were not affected and repeatedly returned.

The second case occurred a short time ago. The woman had eaten a large quantity of bretzels and sauerkraut. She had had convulsions before, indicating that she had kidney disease. The treatment given by my assistant, Dr. Brack, consisted in cleaning out the bowels by purgatives. The woman was delivered in good condition.

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The third case I did not see until about an hour before her death. In this case the convulsions occurred after the birth of the child, and all I could find out about the case was that there had been previous kidney disease of long standing.

Two cases occurred in the hospital a short time ago within a week of each other. In these cases the steam bath was used with excellent results.

DR. L. E. NEALE.—As regards the suggestions of Dr. Browne and Dr. Williams, who use bleeding in all cases, I must say that I am inclined to believe in that myself, especially now that we know more about the pathology of the condition. The rubber finger protectors as used by Dr. Kelly are an additional mode of improving our technique, but they are hardly absolutely necessary. With reference to Cesarean section, as suggested by Dr. Williams in certain cases, I stated in my paper that such has been done, but I myself have not met with such a case.

Dr. Jones seemed to intend to throw cold water upon the practice of emptying the uterus in all cases of convulsions. My own views are in favor of the emptying of the uterus, and I think it might even be a part of the prophylactic treatment. I would not hesitate a moment to empty where the convulsion had once occurred, and I think it should be an established part of the treatment.

DR. HOWARD A. KELLY read a paper entitled

THE PRESERVATION OF THE HYMEN.[1]

DR. B. B. BROWNE.—This is a subject of some interest, but at the same time the matter of examining the uterus through the rectum has been treated of in text books for many years. It is all very good to call attention to it again, but most of the text books lay great stress upon it, and I think most gynecologists practise that method. Of course there are cases where operative procedures have to be done through the vagina. We all know that where an anesthetic is given the hymen can in many cases be pushed back and not be ruptured, but in some cases it will be ruptured. I think perhaps many of the cases Dr. Kelly spoke of had been cured by the gynecologists that were treating them, and therefore there was nothing the matter with them when he saw them.

DR. W. E. MOSLEY.—I am hardly willing to believe that the average physician even, laying aside the men who have been educated as gynecologists, is performing this form of rape that Dr. Kelly speaks of. I have been obliged to examine a number of virgins myself, and I do not know of a single instance in which I have ruptured the hymen of a young woman. I have faith in the general moral stand that physicians take in the treatment of young women, but, on the other hand, the fact that the woman is a virgin ought not to influence the man and make him refuse to make a local examination. I

[1] See p. 7, January JOURNAL.

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have known of this being the case repeatedly when an examination showed that the trouble could only have been found in that way. A girl came into my hands who had been through the hands of four as eminent men as are in this city, and she had taken pills and powders galore, but within a few weeks after I saw her she was attending dances and all the duties of society, because I had corrected an anteflexion. In another case a girl came from a man who refused to examine her, and I found a backward displacement. She wore a pessary for about a year (it is in my office now), and I think nobody short of a physician would find that that girl's vagina had been tampered with. I think she is morally just as good a girl to-day as she ever was, and I do not like to see this stand taken that the physicians are abusing the moral signs of young girls. I think the moral effect of local examination upon a woman depends very much, almost absolutely, upon the man who makes it.

DR. J. WHITRIDGE WILLIAMS.—I have had cases come to me with all sorts of stories about their troubles, and found them in normal condition. The quotation made by Dr. Kelly is very interesting, and, I have no doubt, was the sentiment that was necessary at that time. Dionis in his text book said he had read in Anatomies that there was a hymen, that he had searched all over Paris in all sorts of women for one, and, never finding one, he had concluded that the statement in the Anatomies was a mistake.

DR. J. M. HUNDLEY.—I heartily agree with what Dr. Kelly has said. I have seen a great many young women, and probably do see half a dozen a year, that have been unnecessarily examined. I not long since told Dr. Kelly of a case in which I removed a large pessary from a young girl who had no business whatever to have it. It had been introduced by a physician here in town. Some eight years ago I wrote a paper on the subject of dysmenorrhea, which was read before the Clinical Society, and at that time condemned the ruthless way in which young girls were examined simply because of pelvic pain. I saw a case to-day of painful menstruation where there was absolutely no disease. It was simply a little pain at each menstrual period, and there was no reason to examine such a patient. I find a great many girls that are examined and treated for a while who, when they come to me, have nothing wrong whatever. I think an important point of the paper is the matter of fixing in the young person's mind the suggestion that she has some disease of the generative organs, for when the mind is fixed on that point you have produced a serious condition. I think this paper is a very timely one.

DR. GIBBONS.—I am not a gynecologist and am not able to discuss this paper, but the caution thrown out is said to be needed by the general practitioner, of which I am one. If there is a sin in the making of these examinations it must be with the specialists, for I do not believe that the general practitioner as a rule makes these examinations. I remember one case where the parents of a young girl thought she ought to

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have an examination. I refused to do it and referred her to a specialist, who, after an examination, inserted a pessary. About a year afterward another specialist examined her and decided that there was no need for it. I say, then, that if it is a sin I think it lies upon the hands of the specialists, and I doubt if many of the gynecologists refuse to examine these girls when they go to them.

DR. KELLY.—Pseudo-gynecologists you mean, doctor.

DR. GIBBONS.—I cannot tell about that. for nearly every gynecologist thinks he is the man. I would like Dr. Kelly to tell us how we can tell whether a woman is free from disease unless we examine her. Must we send them all to specialists for an examination?

DR. NATHAN R. GORTER.—I would like to mention a case that came to my attention some time ago. It was the case of a virgin that had been under the care of three quite noted specialists—two in New York and one in Baltimore. The symptoms when I saw her were those of prolapsed bowel and were the same symptoms that had been present all the time. There were no symptoms pointing to the generative organs, and I do not think there ever had been.

DR. J. M. CRAIGHILL.—The question of womb disease ought not to be brought to the mind of a girl at all. My experience is, usually, that the mother takes me into the room and begins at once, before the girl, to talk of the womb. I generally take her out and tell her that the least she says about the womb the better for her daughter. Then I try to find out the trouble, and, if necessary, send her to a specialist.

DR. KELLY.—I think the general practitioner at a distance from a large city is much more apt to be the offender than those in the cities. The average general practitioner is no more capable of deciding delicate lesions of the uterus than he is of deciding diseases of the choroid of the eye, and the descriptions of conditions that come to me of such examinations are, in nine cases out of ten, utterly false. Of the young women without gross lesions, in fully ninety per cent of them the treatment is unnecessarily instituted, for there is no demonstrable disease. There may be a dysmenorrhea, but nothing can be found by the most searching examination.

I do not want to offend the profession in this regard, but if it is the truth I shall continue to speak it out. The pseudo-specialist is pretty well known. There are plenty of them around town, and you all know them. I will insist, too, that while men are amongst the offenders, women are the chief ones, and they seem to think because they are women that they can do anything they please with women. I insist again upon the moral obligation we are under to retain the only *prima facie* evidence of virginity, the hymen.

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Meeting of January 11, 1898.

The Vice-President, W. W. RUSSELL, M.D., *in the Chair.*

DR. W. W. RUSSELL.—We have with us to-night our distinguished fellow-worker from Philadelphia, Dr. Joseph Price, who has kindly consented to give us a talk upon

SUPRAPUBIC OPERATIONS.[1]

DR. HOWARD A. KELLY.—I could not help thinking, during the reading of this paper, how Dr. Price and I have changed places. He has gone North to become a Northerner, while I have come South to become a Southerner. The whole South must feel proud of Dr. Price for what he has accomplished.

I feel with Dr. Price that the suprapubic route is the one. I have tried the vaginal occasionally and I do not like it. It is pretty surgery and appeals to the onlooker, and I think the finest piece of operating I ever saw was done by Ségond, in New York, in taking out the uterus. Vaginal work leaves very little room for conservatism. The man who opens the abdomen from above sees what is present and knows whether he can conserve some of the organs. That is the line which is distinctive of the newer and better gynecology at which Dr. Price hinted.

Yet I would not be quite so radical as Dr. Price, for I believe in draining pelvic abscesses, and I have seen such cases do well. Nature does this, and we know that in the hands of our forefathers such patients recovered by this means. We can get these patients through their ailments without removing the structures. If Dr. Price will think a moment and recall his own extensive maternity work—and, after all, the biggest piece of surgery in the body is the birth of a child—he must agree that we are not warranted in calling this surgery dirty from beginning to end, for, if so, we would have to say that Cesarean section was the best for every birth, instead of birth per vaginam.

I, however, agree with the doctor in the broader rules he laid down, and think that by the suprapubic method we can do cleaner and better surgery.

DR. J. WHITRIDGE WILLIAMS.—I am hardly prepared to discuss the subject, but can only echo in a mild sort of way what has been said. I have seen in my own hands very few cases in which I felt justified in resorting to vaginal openings. There are cases in which it would be well, but as a rule I believe all of us would do better work from above than from below. I had this forcibly impressed upon me when seeing Ségond operate in Paris a few years ago. Up to a few months ago he was the apostle of the vaginal operation, and when I was in Paris he was doing a great many of these operations. I saw him do one which prejudiced me against the method. He

[1] See original article, p. 588.

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took out the uterus all right, then one tube and ovary came out all right, and then he pulled down something, felt it between his fingers, cut it off, pulled down some more and cut that off, then pulled down something more, and finally said: "Why, this is peculiar; this is intestine." He had cut off some inches of intestine in mistake for a Fallopian tube, and I thought if that was his success I had better stick to the suprapubic method.

I see that Dr. Perry, who has just returned from Europe, is present, and think the Society would like to hear from him on this subject.

DR. PERRY.—During my trip abroad in the interest of gynecology I was very much impressed by one fact, and that was the difference of opinion existing among the various leaders in the gynecological world. So far as Dr. Landau is concerned, he uses the clamp method and prefers it to the suprapubic. He is a very careful man, and, I believe, selects his cases. There are cases in which he does the suprapubic operation, but in the majority of cases I believe he prefers the vaginal route. He claims that in most inflammatory troubles, where he can safely think that grave troubles do not exist, the vaginal route is best, and he prefers it also for tumors of the uterus that are sufficiently small to pass through the vaginal outlet.

One of the leaders of Berlin, Prof. Martin, preferred the vaginal route also up to a few months ago, but he is now using the suprapubic. I do not know his reasons for the change.

DR. WILLIAMS.—What are the relative results as compared with the work done in this country?

DR. PERRY.—As a rule, in Landau's suppurative cases, my impression is that the patients do better, at least as long as they remain in the hospital. It is very unusual to have a rise of temperature, and I think they do well as long as they remain in the house, but after they leave I know nothing about them. He claims that the results are better than by the suprapubic route.

DR. B. B. BROWNE.—I agree with Dr. Price in the main, but I think that there are cases in which the vaginal route is the best one, especially cases of incipient malignant disease of the cervix, and even carcinoma of the fundus of the uterus. Where the tumors are small and the surrounding viscera are not implicated the vaginal route is desirable. On the whole, however, the suprapubic method is, in the great majority of cases, the proper method.

DR. T. S. CULLEN.—In nearly all these cases where there has been an accumulation of pus the pulse rises very rapidly when the anesthetic is given. A patient entered the hospital giving a distinct history of pus accumulation, and on examination a cystic mass was found occupying the entire lower abdomen and extending to the umbilicus. As the pulse was rapid Dr. Kelly performed vaginal puncture, removing seven hundred cubic centimetres of pus. The sac, which proved to be an ovarian abscess, was drained, but after several weeks pus began to again accumulate. I dilated the opening, but it soon

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contracted again. A few days later, while dilating the sac a second time, I found that it commenced to peel off, and on continuing to separate the membrane, to my surprise, we were able to remove the entire sac. That patient soon returned home and at the end of six months was perfectly well. We were able to remove the entire tract in that case. In several cases where puncture was performed we were able to bring the tube down and to see whether it was normal or not.

On the whole I agree with Dr. Price that the abdominal route is the preferable one. In regard to Dr. Browne's remarks concerning malignant growths in cases of sarcoma and carcinoma limited to the body of the uterus, I think the abdominal route should be used, because we cannot remove the tubes and appendages with the same thoroughness per vaginam.

DR T. A. ASHBY.—Dr. Price made one statement that I thoroughly indorse—that is, that the surgeon should not have in view an ideal operation, but should be guided by experience in selecting the method best adapted to the case in hand. I believe in both routes if we select the cases carefully. I drain by the vagina when I have simply a collection of pus. There is no doubt in my mind that the suprapubic operation is the proper procedure in all cases where we have encysted pus. The advantage of the abdominal route is that it gives the surgeon a clear view of the whole field of operation, and he is in a position not only to remove the infected area, but to examine the surrounding organs and to correct any lesions that may exist. That cannot be done by the vagina. I would not undertake to do a vaginal operation for pus tubes. When the operation was first introduced by Dr. Jacobs here in Baltimore I became convinced that it was not thorough and final.

I think the more we do intra-abdominal work the more common will we find intestinal complications. It has been my experience that the intestine is very frequently involved. I have had occasion to resect the bowel three times in connection with the removal of pus tubes. I have had openings into the bladder and had to sew them up, and certainly those conditions would have escaped attention but for the abdominal method of operating. I again say that a man should be guided by the conditions of the case and do the operation that seems to be clearly indicated in that case. I have no special operation in view, but do that which my experience and judgment teach me is best, and adopt the route that promises the best results. I have had a case recently which shows this. Within six weeks I have removed a pus sac from the pelvis that had drained through the sigmoid. She had been drained because she was in too bad a condition for operation. After recovering somewhat a secondary operation became possible. In removing the pus sac I had a great deal of trouble and found an opening into the intestine that had to be closed. This made a long, tedious procedure and one that promised poor results. I put in a drain, packed off the intestine, and succeeded in getting the patient through. She finally recovered with a fecal fistula,

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which was drained and closed spontaneously. She has fully recovered. She never could have recovered from the puncture alone. I think we sometimes encounter cases of that kind where we may temporize for a time with the vaginal method, and then we can approach with the abdominal method. I should like to have had Dr. Price's advice at the time of the primary condition, to see whether he would have tried drainage as a temporary expedient.

In regard to operation for malignant disease, I am prepared to indorse Dr. Browne's position with some modifications. I believe if we can take a case of epithelioma of the uterus in the early stage of development, before there is any involvement outside the uterus, that the vaginal operation is an easier one, and one attended with less mortality than the suprapubic. As to removing the tubes and ovaries, I have had no trouble in removing them with the uterus per vaginam. I can understand why there may be some trouble at times, but mine have all recovered and the operation has been very favorable. I have had so far no return of malignant disease, so far as I can trace my cases.

DR. W. S. GARDNER.—All of us who have paid any attention to gynecological literature during the past few years are familiar with Dr. Price's work and have a very high regard for it and for him. At the same time, however great a man may be, he does not always say the thing that exactly agrees with everybody's opinion; and it is well known, I think, that Dr. Price has worked the suprapubic operation very hard, if not exclusively, and that he has not been in favor, at any time, of the vaginal route.

Now, there are two things to be done in any operation. The first is to get the patient well, and it is entirely a secondary matter whether we can get out all the structures that have been diseased; the important thing is for the patient to recover. The second important thing is to bring about that recovery with the smallest amount of danger. There is no question that there are a considerable number of these large pus collections that, in the hands of the average operator, are very much better if freely drained by the vagina than if operated upon through the abdominal wall. I have seen these cases repeatedly, a number this summer—some that I operated upon myself, some operated upon by others—and the patients had recovered, and recovered completely. The statement that Dr. Price made, that cases operated upon by the vaginal operators were not cured, is certainly, in my opinion, an absolutely incorrect statement. These patients do get well.

Now, there is another class of cases besides the pus cases—that is, the very considerable percentage of extrauterine pregnancies. No one will accuse Dr. Kelly of being a timid man. At the same time he has opened the abdomen in such cases and then abandoned that route and operated per vaginam. In THE AMERICAN JOURNAL OF OBSTETRICS he reports thirteen cases of that sort, and he has operated upon several since. In the

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Journal of the American Medical Association of recent date a series of such cases are reported, with recovery after simple drainage through the vagina. I did an operation of the same kind in August and another last Sunday, and if I had another such case I would treat it in the same way.

As to operative sequelæ being more serious than after abdominal operation, I certainly do not agree with that statement. In my experience they have been less serious than many of the abdominal cases.

There is no question that in a majority of cases the abdominal route is the proper one, but there are many cases that can be operated upon by the vagina.

DR. J. M. HUNDLEY.—I only want to allude to the case spoken of by Dr. Ashby. This case was operated upon by me in the University Hospital. The puncture was done about three weeks after an incomplete abortion. There was pointing in the vaginal outlet, the pulse was 160, and she was practically in a dying condition. I thought it was impossible to do an abdominal operation. In a case of that kind the woman's life certainly was saved, for she could not have stood a prolonged abdominal operation. The pus was evacuated and she came back to Dr. Ashby for the secondary operation.

I only want to ask Dr. Price what he would have done with such a case.

DR. PRICE.—I thank you all very much for your interest in and full discussion of this subject. It would be difficult indeed in a short paper to cover a subject of so much importance, and I probably would be the wrong person to do it. I may, in discussion, allude to thrice more points than I would in the paper, for any attempt at classifying the acute and subacute cases would require a very lengthy paper.

In regard to some of the cases alluded to, I would simply say that you exercise your wisdom and judgment in dealing with neglected cases, as some of you have indicated. Supposing that we see our cases early, the first week or the first month—not the seventh year, if you please—our surgery would differ very decidedly at those periods. For instance, I have a patient in bed now who seven years ago was for seven weeks in bed, and really it puzzles me to determine whether I shall operate on that case from above or below. I cannot pass a finger into the bowel and she cannot take an enema. She had six or seven attacks of pelvic inflammation in the past seven years, she had encysted kidney on one side, and it would take an iron wedge to enter her bowel. Now, that is not an ideal case for either route.

It is interesting to note that we have advanced beyond the point occupied a few years ago when we were all discussing the pathology of the disease. There has not been an allusion to the pathology or the diagnosis of the disease, and there is no longer any wrangling over the pathology or the sacrificing of disorganized tubes and ovaries, for we well know now that something of surgical nature should be done for these patients.

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America has done very much to advance this subject. France was slow indeed to accept surgery of any character. One or two men did some good surgery, but the abdominal surgery of the French has never been very fine; it does not compare with American surgery. I was glad that America, and Baltimore particularly, did not afford a field for the Belgian missionary. Jacobs ventured to say that he had had three operations for ectopic pregnancy by the vaginal route, and that that was the route. In some one hundred and seventy or one hundred and eighty of his vaginal operations he gives a series of seventy-two or seventy-eight extirpations of the uterus and appendages without adhesions of the adnexa. Now, we do not look upon such cases as suitable cases for either route. If both tubes are free of adhesions, in all probability the seventy-two cases were patent tubes. If we have adhesions of tubes we shall have occlusions with retentions of blood, pus, or something else. He removed the uterus, the appendages remaining, in twenty-two cases out of seventy. Now, what would be the method of an American surgeon? If you trust him to remove the uterus he will, as a rule, remove the tubes. Simply removing the uterus is one of the easiest operations in surgery, for the application of the first two forceps practically finishes the operation.

Dr. Kelly's point is well taken in regard to the delivery of a child at term. It is one of the most dangerous surgical operations, one of the most fortunate, and one of the most pleasant that occur in an American household. I have six children, and I wish I had sixteen. But Dr. Kelly loses sight of the fact that just before he graduated the mortality varied from twenty to forty-five per cent, both in private and public maternity work. The mortality now is not very far short of that of ovariotomy when well done. I have seen in one week four lovely women die in childbed, and that within the last week. None of them should have died. If delivery is perfectly normal there is no reason for mutilation of the fundus down. You remember, many years ago, what pest-houses maternities were. When you complimented me with a request for a paper I started one on maternity matters, for it was the subject which I felt needed most attention; but I concluded that I had been out of the swim for a year or two and was not quite up to it.

Ségond does wonderful work, but it would be interesting to see him work from above, and it would be interesting to note the effect of the picture he had to see from above. If he saw the same picture many of us face, of the pelvic disease from above as well as below, he would not be quite so radical in his methods. I understood recently, from a prominent gentleman in Memphis who was returning from Belgium, that Dr. Jacobs had given up the lower route and is now working from above. You will remember that in a short series of one hundred and fifty or two hundred cases he wounded the left ureter and bladder nine times, and in one case it was necessary to remove the left kidney. He did it nicely and the patient recovered.

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In one or two cases he had bowel lesions and had to use the Murphy button; his patients recovered. I allude to that in what I call post-operative sequelæ of the vaginal route. I do not want you to understand that I think the vaginal route has many sequelæ.

The question is naturally asked, how much the remaining cicatrix complicates things whether done from below or above. You have a patient who you fear will not bear the suprapubic operation, and you aspirate your case and drain. In many cases there is no reason why they should not get well. The case alluded to by Dr. Cullen was such a case, either an ovarian cyst or an abscess. I remember a case operated upon, many years ago, by Dr. Hunter McGuire. The patient was incised, drained, and made a good recovery. She returned home and the sac refilled, notwithstanding the fact that she had drained well. She returned, was again incised and drained, and came to this city, where she was advised to again go back to Dr. McGuire. She came to me, however, and, with the history given from the hands of one of the most skilful of men, I hesitated to do a section. An enucleation of the ovarian abscess was done, but I had a fecal fistula, which closed in less than four days and the woman made a nice recovery. I think I could begin at New Orleans and give in every State a number of such cases. which are commonly called cures, and I think you would all dread to open such abdomens.

I dread to hear of the death of a good old gynecologist in the Southwest, because it puts into my hands every time three or four cases that have had the vaginal treatment, and it gives me one or two deaths. Shortly after the death of one of the most distinguished gynecologists I received three of his patients. They all had sinuses in the vaginal vault. Two of them got well, but one, a woman of considerable prominence, died. The man who did the operation was quite as capable of doing it as Ségond himself.

Now, I beg of you not to call cases which you drained last summer cured. That is too short a time entirely. My cases will go into your hands, and your cases will come into mine, after we think they have been cured.

Alluding to Dr. Kelly's work in ectopic pregnancy, I must say that I am sorry Dr. Kelly does this operation. He is too important a man and knows too much about surgery to deal with such cases in that way. Take the thirteen cases referred to. In one he incised the vaginal vault and drained. The hemorrhage continued, and he then opened the abdomen and saved her. Now, with the perfected operation at first her chances would have been very much better. Again, take the thirty-seven cases of vaginal puncture. The analysis is a very fair one and is worthy of careful study. One of them returns three times for treatment; one a second time for the repuncture, and one for the second or third time; and two or three for the completed method and removal of the pathogenic conditions. Now, I do not consider that table a good showing at

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all in the hands of one thoroughly competent to do good work. I will therefore say, as one familiar with the work from both above and below, that I prefer to work from above. I do not want you to think that I do not do vaginal work; I am probably doing more now than any one else in America, but if I were compelled to make my choice of the two methods it would be the suprapubic route. Really it is drainage that saves many of the vaginal cases, and it is a beautiful demonstration of the value of drainage. I have done a large number of suprapubic operations following vaginal operations, and I must say that they are the least favorable operations to do. Bowel lesions are quite common; I think I do two or three resections in every one hundred abdominal sections. I get hold of six to ten inches of miserable bowel that I have got to resect, and I then get hold of as many inches that I have to stitch, diminishing in many cases half the lumen.

In closing let me remind you of the little girl's definition of abdominal surgery. She asked permission to go to town with her father, who replied that he would be busy operating, and asked her: "What do you understand by operating?" She said: "Fixing people's insides right."

DR. KELLY.—Mr. President, I move that the Society extend to Dr. Price a vote of thanks, and I would like here to say that he is like Gen. Joe Johnston—he strikes his hardest blow in retiring.

A vote of thanks was unanimously adopted.

The Society then adjourned.

Meeting of February 8, 1898.

The President, L. E. NEALE, M.D., *in the Chair.*

DR. J. M. HUNDLEY reported a case of

ULCER OF THE BLADDER TREATED BY CURETTAGE.

DR. H. A. KELLY.—I would like to congratulate Dr. Hundley for having brought this case before us, for it is exceedingly important to us at this time that such matters should be reported. It is more essential to examine the urinary tract in such cases than it is to examine the respiratory tract in throat trouble.

Dr. Hundley has referred to my experience in this line. Practitioners very generally treat these cases as cases of cystitis in a vague kind of way and without obtaining anything definite in the treatment. Now, Dr. Hundley will not claim to be a remarkable expert, I know, with this instrument, for he has but recently taken it up; but he was able to locate the position of the ulcer at once and to institute a satisfactory method of treatment immediately, and cure his patient of a distressing and dangerous disease. Let us in these cases which exhibit persistent urinary trouble, which may be dangerous and which

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do not at once clear up, make a local investigation. Having done this, we will usually find the lesion at the base, rarely in the position found in Dr. Hundley's case. Ulcers at the base are apt to be excavated and one or more in number. The deeper ulcers may be treated by injections. The use of iodoform emulsion after the injections is in many cases good, and if these fail curettement is the rational method of treatment. We do not curette the whole bladder in the hope of striking the right point, but curette only the affected area. I have had in mind to make a curette with a sharp blade which could be plunged through the vesical septum, and thus, while looking at the area, curette it as thoroughly as I wish. One or two stitches of catgut would close the wound made by using such a curette.

I have not met with such a case as Dr. Hundley has described, and it is evidently a rare one. He is to be congratulated upon having obtained such a good result.

I have investigated in the same way an ulcer in the male bladder through a perfectly straight speculum, fifteen and a half centimetres long, with a lumen about the size of a No. 26 French catheter. In this way I have seen and diagnosed an ulcer in the male bladder which had been overlooked by the electric cystoscope. In another case I was able to inspect the whole bladder, to separate the urine, and to examine separately that which came from each ureter.

Meeting of March 8, 1898.

The President, L. E. NEALE, M.D., *in the Chair.*

DR. BARTON COOKE HIRST, of Philadelphia, read a paper on

THE COMPARATIVE VALUE OF CELIOHYSTEROTOMY AND CELIOHYSTERECTOMY IN CASES REQUIRING A CESAREAN SECTION.[1]

DR. J. WHITRIDGE WILLIAMS.—It is almost presumptuous for any one of us here in Baltimore to attempt to make any remarks upon this paper, because Dr. Hirst has done the operation more frequently than any other man in America, and possibly more than any two or three that I know of.

We must all congratulate Dr. Hirst upon the large number of cases that have fallen into his hands and upon his excellent results. Personally I may say that during the past few years I have seen three cases that required Cesarean section, but in none of them were we able to operate, so that anything I may say will be theoretical.

In general terms we cannot help agreeing with what Dr. Hirst has said. Where we have tumors, etc., our duty is clear, but in that class of cases where we have a simple contracted pelvis and the woman in good condition the problem

[1] See original article, p. 577.

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is somewhat different. To my mind it is a question that cannot be solved by ourselves, but requires the co-ordination of the doctor and the family. If, after consultation, they do not desire to assume the chances of another pregnancy, our duty is made clear. In a large class of cases seen in the hospital the question must be left to the physician, for a large number of such cases are so ignorant that they are not able to decide for themselves and should not be allowed to do so. For my own part, in such cases I shall remove the uterus. In dealing with patients of higher intelligence the matter should be talked over with them and we must do as they wish.

DR. T. S. CULLEN.—I have read with great interest the cases recently reported in Germany in which the child was extracted per vias naturales and the puerperal uterus removed by vaginal hysterectomy, principally in cases of carcinoma requiring operative interference, and find that the prognosis is much better after these operations than where the Cesarean section alone was done. Where there is a carcinoma present, infection is likely to occur unless the uterus is amputated.

During the last three years I have seen Dr. Kelly do three celiohysterectomies in carcinoma cases. I think the possibilities of vaginal hysterectomy even at term will sometimes supplant the Cesarean section. The child may be readily removed, the tissues are more elastic, and the outlook in cases of carcinoma, especially after removing the uterus, even as late as the ninth month, is very promising.

DR. T. A. ASHBY.—I have had no practical work on this subject, but I am persuaded that the operation suggested by Dr. Hirst is the best operation. The question must depend upon the primary mortality and the secondary results of the operation. We have in the Porro operation a complete one. We remove a condition with good primary results, and we do not leave behind an organ that may be involved in subsequent trouble. These are its two important features. To save the life of a patient and to leave that patient in the very best possible condition for the future is to be desired.

I begin to think this is one of the easiest operations in abdominal surgery, for it is or must be easy to remove the uterus after pregnancy.

DR. HIRST.—It is the easiest hysterectomy to perform.

DR. ASHBY.—I think the argument advanced by Dr. Hirst in support of the Porro operation is very strong, and there is only one criticism that can be made—that is, in regard to the subsequent pregnancies. I do not believe that these women should, in any large number of cases, be allowed to become pregnant again. If the patient elects to take her chances we must consider them, and I believe I would do as Dr. Williams has suggested. If left to my own judgment I would decide the question from a surgical standpoint and do the Porro operation.

I would like to ask Dr. Hirst how many Porro operations he has performed.

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DR. HIRST.—Seventeen.

DR. WILMER BRINTON.—I understood the doctor to say that the mortality of Cesarean section is forty per cent. I am glad to hear that statement, for we are apt to suppose from the literature of the subject that it is better. In the hands of the average operator, then, I should think the Porro operation is destined to be the operation.

DR. J. H. BRANHAM.—I have had little experience with operations of this nature, and that was not altogether favorable. I did a Cesarean section a few years ago and have been sorry that I did not do a Porro in that case. The surroundings were very bad, the patient having been in the hands of a midwife for some time. I had attended the patient before, and had refused to take her case this time because she would not come to the hospital and have a proper operation performed. I had extracted one child for her after doing a craniotomy, and another physician had done the same thing. The patient was operated upon by the Sänger method in her home, in very bad surroundings, and she died three days later with indications of infection, which I believe occurred as a result of the midwife's treatment.

Shortly after that case I had an opportunity to do a Porro operation. I removed the uterus of a colored woman whose organs had been very much ruptured at the time of delivery, and this operation was also done under unfavorable conditions. The uterus was removed entirely, the vagina sewed up, and she made a very good recovery. I heard from her the other day, after the lapse of a year, and she is in excellent health. She continued to nurse her child partly, and the point that Dr. Hirst made I think was very well shown in that case—that is, she did not show any decided symptoms connected with the menopause.

If the patient can be operated upon with all the circumstances favorable, without any possibility of infection before the operation is begun, and the operation performed at the beginning of labor, the Sänger operation may give a smaller mortality. Of course statistics vary, and you will find some who believe the Sänger operation the best and others who oppose it; but if infection has not taken place previously I should think the Sänger more favorable.

DR. ROBINSON, of Nashville.—This is a question in which I have had no experience myself, but I feel very much interested in it from a theoretical standpoint. I am peculiarly fortunate in being able to hear Dr. Hirst's paper, and it will be one of the pleasant recollections of my visit to Baltimore.

It certainly seems to me that the total extirpation of the uterus in these cases is well warranted, and the only question in my mind is in relation to the indications for that special procedure. I take it that most of these cases sift themselves down to one proposition, the patient and the family usually taking the advice of the attending obstetrician, and in that event I believe it is his duty to give that advice which seems most

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likely to bring about recovery and future good health. I see no reason why the Porro operation should not be done, and, as the family usually follows and relies upon the advice of the obstetrician, I see no reason why he should hesitate to give advice and assume the responsibility.

DR. L. E. NEALE.—I think Dr. Hirst's unusual experience, as well as his good results, practically remove any doubt of his conclusions, and the principles he laid down are in the main incontrovertible. I should only like to say that the statistics quoted were surprising to me, and I hope he will, in summing up the discussion, give some reason why those were taken as the proper statistics. I should also be pleased to hear if there is any explanation as to why there should be such a greater proportion of these cases in his locality than we see here.

DR. T. A. ASHBY.—In Baltimore we have few opportunities to do this operation. It strikes me there is an explanation in that many of these cases do not fall into the hands of the surgeon. I have heard recently of a case of this character where a woman was permitted to perish who might have been saved had an intelligent physician been called in. I heard of the case through a medical student who had been called to see the patient. I have no doubt we have in Baltimore to overcome that condition of prejudice on the part of the ignorant classes and the want of knowledge as to the necessity of calling in obstetricians in difficult cases. In Philadelphia they have a different population, the lower classes being more intelligent, for we have here a large number of negroes, and I think that may be one point in the explanation.

DR. HIRST.—As to the number of Cesarean sections that may come to a single individual, I think it can be explained in this way: My four cases last winter were all sent by physicians at a considerable distance from Philadelphia, and the two operations I have done this winter both came the same way. The last one was from New Jersey and had a dermoid cyst in the pelvis which could not be dislodged. The other came from up in Pennsylvania, after having been four days in labor. I have written a great deal upon this subject, and that helps to account for it. Having done so many of these operations, of course, lays me open to the suspicion of having done some unnecessarily. I think I have as acute a conscience as any one, and I have refused to do many operations I was called upon to do. On looking back I feel sure that I have operated only when an operation was duly demanded in the best interests of the mother and child.

I have never yet found, on putting the question fairly to the people, any difficulty in settling it. When they are sufficiently intelligent to make a proper decision I leave it to them, without indicating my preferences, for I do not feel justified in urging an operation upon the patient or her friends, and so far I have not seen any hesitation in any case. I do not think any of us would hesitate to decide if our wives were in such a position.

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We would not subject them to the risk of such an operation again. As to the ignorant classes that cannot be impressed with these dangers, I really think we are justified in acting on our own knowledge and belief, for if the matter were placed before them they are incapable of making a decision. So I say nothing about it to them, but take the uterus out and thus prevent their becoming pregnant again.

As to my own mortality statistics, I think they are not large enough to base conclusions upon. My mortality has been twenty per cent, which is not a creditable showing if you simply accept the figures. The deaths have been inevitable, though, and I have wondered that some of the other patients recovered. The majority of the cases have been brought to me much later than they should have been. I remember that one of the women came after four days of hard labor and after having had forceps applied by three different men. The temperature was below 97°, pulse 140, and the conditions such that a general surgeon would not have operated. I was obliged to operate upon her and she got well. One cannot expect a recovery in many such cases. The only case which I have lost from Cesarean section where I operated in time and with proper preparation was a woman upon whom I did the Sänger operation. I did the operation well, with every advantage, with trained assistants, and everything was all that could be asked for, and yet she died from septic peritonitis. From this experience I was convinced of the dangers of Sänger's operation as compared with hysterectomy.

There is no hysterectomy so easy to perform as the puerperal hysterectomy. The tissues are elastic, the ligaments can be put on with ease and nicety, and I have done no operation with so much satisfaction as this. The whole operation takes about thirty minutes, including dressing.

As to Dr. Harris' statistics, I think that brings up a matter of great interest and importance, on which societies of this kind should speak their minds. I believe the transactions of such societies have done a great deal of harm in one respect. I cannot speak for this Society, but I am unfortunately able to speak for some others. A man reporting his results sometimes assumes an air of infallibility, makes light of serious operations as though they were nothing and leads others to assume something of the same kind, and the result upon the medical community at large has been very unfortunate. Men in the country reading such reports get into the habit of regarding these serious operations very lightly and attempt to perform them. I believe that many women have lost their lives in this country in just that way. I was called as an expert witness in Harrisburg in regard to an operation which was intended to have been a Cesarean section, undertaken under the following circumstances: A little, rickety dwarf came to a physician with the statement that she was pregnant. She had swollen breasts and an enlarged abdomen, and he accepted her statement, concluding at the same time, from superficial examina-

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tion, that she could not be delivered. He had read of these operations being done right and left without mortality, and he jumped at the opportunity to perform one. She was told to keep him informed of her progress, which she did, and finally sent him word when the nine months were up. He made an examination, summoned some ten or twelve physicians of the vicinity to witness the operation, three or four of whom made examinations, and all agreed as to the pregnancy, differing only in opinion as to whether the head or body was presenting. He made an incision from the ensiform cartilage to the pubes, and found nothing but an excessive amount of fat. She entered suit for damages. I recall another case. I was called into an interior county of the State to perform an operation, and some eight or ten doctors had been invited to witness it. One of the gentlemen remarked that I might be interested in knowing that he had performed a Cesarean section some weeks before. He could not tell me just why he had done it, but he thought the pelvis was too small for normal delivery. He opened the uterus, delivered the child, but could not stop the hemorrhage, and the woman bled to death. So far as I know I am the only person outside of that community that heard of the case.

Dr. Harris has not been content to take the published reports from journals, but writes to prominent men all over the country that he thinks might know of operations of this kind performed in their neighborhood, and he gets in that way a surprising amount of material. He has collected many cases that would not have been published if he had not gotten them in this way. Having heard of such a case, he does not rely upon the report, but writes to the operator and bases his conclusions upon his reply. The bad mortality records depend upon two facts—the great delay in resorting to it, and its being undertaken by men who have not had the necessary training to enable them to do any abdominal operation with a fair degree of success.

DR. J. WHITRIDGE WILLIAMS made a report on

FORTY CASES OF FEVER IN THE PUERPERAL PERIOD, WITH A BACTERIOLOGICAL EXAMINATION OF THE UTERINE CONTENTS.

For the past two years we have made cultures from the uterine lochia which we have taken from the uterine cavity by means of a sterilized glass tube, following the method of Döderlein, in every case in the lying-in wards of the Johns Hopkins Hospital in which the temperature has reached 101° or higher, while in the out-patient department and in consultation work we have placed the lower limit at 102° on account of the technical difficulties which surround this character of work outside of a well-regulated hospital. Besides the bacteriological examination of the lochia, the blood has been examined in every case for the malarial plasmodia.

We found streptococci in 8 cases, staphylococci in 3 cases,

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colon bacilli in 6 cases, gonococci in 2 cases, anaerobic bacteria in 4 cases, unidentified aerobic bacteria in 3 cases, bacteria on cover glass which did not grow on cultures in 4 cases, diphtheria bacilli in 1 case, gas bacilli (bacillus aerogenes capsulatus) in 1 case, typhoid bacilli in 1 case, cover-glass cultures and blood sterile in 11 cases, malarial plasmodia in 1 case—making a total of 44. The apparent discrepancy is due to the fact that in several instances we had to deal with mixed infections. Thus we had two cases in which we found the streptococcus and colon bacillus together, and in the case in which we found the typhoid bacillus we likewise found streptococci and staphylococci.

DR. HIRST, of Philadelphia.—I am glad to have the opportunity of saying that I am far more than repaid for coming to Baltimore by hearing this excellent paper. I have always followed Dr. Williams' work in this direction with great interest. I remember his first paper on the bacteriology of the vagina, and he gave a hint there which I have followed ever since. He suggested that we should make examinations of this kind in every case, and at the hospital I have done so. We have had the secretions examined regularly, and wherever we find pathological conditions a note is appended to the chart, and when she comes to labor she is as thoroughly prepared as if we were going to do an abdominal operation. It seems to me this is a strictly logical and practical course.

Some practical results may be drawn from this interesting paper, and I would like to suggest a continuation of the study in two directions. In the first place, it would be interesting to make a series of examinations in women that show no rise of temperature, to see how many show the presence of bacteria. Again, I think it important to bear in mind the absence of bacteria from the uterus, but their presence in the blood and lymph channels. I have seen some cases which from the clinical point of view I thought were of this kind. These women have no local symptoms, the discharge is not abnormal in any manner, the intrauterine treatment is without effect, unless it be that it makes the woman worse, and yet they go on for weeks or months with septic attacks of great danger. In these cases I have thought that the bacteria passed very rapidly from the uterine cavity to the blood and lymph channels and circulated through the system, leaving the uterus entirely free, but invading the whole organism of the woman. It seems to me it might be important to clear up these two points.

Another question ought to be taken into careful consideration—that is, in how many of these cases do the organisms come within the domain of saprophytes? I am a believer in sapremia. Over and over again I have noticed an entire subsidence of all septic symptoms within twelve hours after thorough cleansing of the uterus. I am afraid that curetting of the uterus is out of fashion. It was very much abused, but I have stuck to it from the start and would not give it up for anything.

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In a very large proportion of cases I have seen the symptoms disappear after its use, when they had failed to yield to medical treatment and cleansing of the vagina.

DR. W. S. GARDNER.—A few days ago I was impressed with the fact that we may have cases of puerperal sepsis without rise of temperature, and temperature, for that reason, is not always a perfectly clear guide. The history of the case was something like this: The woman had had a miscarriage at about five months and had bled to such an extent that her physician told me he was obliged to curette the uterus to extract the placenta, and that she had continued to bleed for some time. She was classed as a bleeder, however, for she would bleed from the gums or from any other surface on the slightest provocation. He had made an application of Monsel's solution to the vagina to stop the hemorrhage. When I saw her, her pulse was 120, temperature about 99°, and she would lie in bed perfectly quiet for hours at a time, paying no attention whatever to anything. There was no odor perceptible about the woman, due no doubt to the fact that she was having vaginal douches every few hours. There was no abdominal tenderness. On taking hold of the pulse my first impression was that that was the kind of pulse found in sepsis. I looked her over very carefully, found that her lungs and heart were in good condition, that there was no tenderness or swelling at any of the joints, and that the uterus was well contracted and not especially tender. On making vaginal examination I found a small clot about the size of a plum, which had considerable odor about it, and I told the doctor I thought there was something in that uterus that had no business there. We anesthetized the woman, curetted her, and removed the entire placenta in such a condition that it almost made me sick at the time. Her pulse came down the next day below 100 and she rapidly recovered.

DR. WILMER BRINTON.—What mortality did you have, Dr. Williams?

DR. WILLIAMS.—All of these cases recovered.

DR. L. E. NEALE.—I take personal pride in congratulating Dr. Williams in this work, for I know he has done it in a thorough way, and any man who comes before us with such a work deserves our thanks. Perhaps the method will not be generally adopted, and I question very much if the profession at large can safely use these means. I doubt if it would be safe for them to insert the glass tube, and, while we use it in the clinic to the best of our ability, I fear its inherent dangers will limit its adoption.

I would like to ask if the absence of these pathogenic organisms would disprove the presence of septicemia, or if their presence would mean the presence always of septic troubles; in other words, can we rely upon the evidence absolutely? May the germs not be in the cavity, or embedded in the wall or even in the general system, and yet we be unable to obtain such germs by this method? I believe the work is a most excellent

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one, and I shall co-operate with Dr. Williams to the best of my ability, and trust that the profession will follow up the suggestions he has laid down.

DR. WILLIAMS.—I am sorry my work was presented so informally. In reply to Dr. Hirst I would say that a large number of observations have been made upon the bacteriological contents of the puerperal uterus, and, except in a very small number of cases where the outlet was normal, the contents were found uniformly sterile. You may say that as a rule the normal uterus, whether pregnant or non-pregnant, has no bacteria in it, so that if we find the pathogenic organisms I think we are justified in saying that they stand in causal relation to the rise in temperature. Of course we cannot state positively if we find the uterus sterile that there is nothing outside of it; but if we combine with that an examination of the blood by the microscope and by cultures we can draw pretty safe conclusions.

Of course there are objections to the method, but it has given me an immense amount of satisfaction. If we have a woman, three or four days after delivery, showing chill and fever, we feel, as a rule, more sick than the woman; and if we can make a culture and find out by the next morning that the uterus is sterile, we get a feeling of comfort that is worth all the labor the work requires. I agree with Dr. Neale that the method is not one that can be adopted by every general practitioner. It requires aseptic technique and some knowledge of bacteriological methods, and men not accustomed to do this will not get good results, for they will contaminate their tubes before they enter the uterus.

J. WHITRIDGE WILLIAMS,
Secretary.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of December 1, 1897.

The President, C. J. CULLINGWORTH, M.D., *in the Chair.*

Specimens.—DR. MCKERRON (for PROF. WILLIAM STEPHENSON): A peculiar mucous polypus of the cervix uteri. DR. MCNAUGHTON JONES: (1) Notes of a case of a double pyosalpinx with enlarged bladder; (2) Uterine fibroids. DR. DAUBER: Carcinoma of the body of the uterus, also affected with multiple fibromyomata, removed by abdominal panhysterectomy. DR. ARNOLD LEA: Microscopic sections of uterine mucous membrane immediately before and after menstruation.

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DR. WALTER W. H. TATE read a paper entitled

THREE CASES OF PYOMETRA COMPLICATING CANCER OF THE CERVIX.

According to Bürkle's statistics, compiled from German operators, pyometra occurred as a complication of cancer of the cervix in 17 out of a total of 273 cases, giving a percentage of 6.2. The author has met with this condition in 3 out of 28 cases of vaginal hysterectomy for cancer of the cervix.

CASE I.—Mrs. R., age 60, widow, nine children. Menopause at 45. History of slight discharge, occasionally blood-stained, for two years, offensive in character for last six months. Cervix greatly enlarged and infiltrated with cancer, which formed a large mass filling upper part of vagina. Vaginal hysterectomy July 9, 1897. Uterus contained three or four ounces of most fetid pus. Recovery.

CASE II.—Mrs. R., age 61, married, nine children. Menopause at 45. History of slight blood stained vaginal discharge for nine months, more profuse for three weeks before admission to hospital. Cervix hard and infiltrated with cancer; shallow ulcer around external os. Uterus not apparently enlarged. Vaginal hysterectomy July 30, 1897. Cervical canal practically occluded; uterus distended into a sac which contained about three ounces of very fetid pus Recovery.

CASE III.—Mrs. B., age 65, married, seven children. Menopause at 41. Occasional blood-stained discharge for four years at intervals of a fortnight; for five weeks before admission discharge purulent and offensive. Cervix enlarged and very hard, with irregular ulcerated surface toward the vagina, which bleeds very freely. On examination body of uterus enlarged and elastic, obviously containing fluid. Vaginal hysterectomy August 26, 1897. Uterus contained three and a quarter ounces of very fetid pus Recovery.

DR. LEWERS said he had had sixty-seven radical operations for cancer of the uterus. Excluding ten of these which were cases of cancer of the body of the uterus, there remained fifty-seven operations for cancer of the cervix. Among these he had met with two examples of pyometra, the larger of which he had shown before the Society. In that case he removed the whole uterus, not on account of the pyometra, but because the growth had spread so high that it seemed easier to get well beyond it by complete hysterectomy.

DR. AMAND ROUTH thought that the fact, brought out so well by Dr. Tate, that cases of pyometra could exist without stenosis of the cervix, was of great importance and enabled one to explain those cases of hydrometra and gushes of large quantities of clear, straw-colored fluid which were not uncommon after the menopause. Many of such cases had no obstruction of the cervix and no tubal swelling was present. With regard to the two cases of vaginal hysterectomy where the surrounding tissues were already apparently involved, he said

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it was impossible to be sure that such indurations were malignant and not inflammatory.

DR. R. G. MCKERRON read a paper entitled

THE OBSTRUCTION OF LABOR BY OVARIAN TUMORS IN THE PELVIS.

This paper deals *only* with those cases where the ovarian tumor occupied the pelvis during labor. One hundred and eighty-three instances of this complication have been collected. These are arranged in nine tables, according to the treatment adopted. Two unpublished cases are detailed. A brief reference is then made to the various publications on this subject. It is pointed out that there still exists, as evidenced in the more recent publications, a divergence of opinion as to the most satisfactory treatment.

The results of the various methods are analyzed. To avoid the erroneous deductions to which mere statistical enumerations are liable, account is taken, where the data permit, of the character of the tumor, of the duration of labor, etc.

Attention is directed to a few features of interest in the clinical histories of the cases. Practical observations are made on the various methods of treatment, based on a study of the cases and of the literature of the subject. Reposition should in all cases be first attempted; where it fails a selection, according to circumstances, must be made from the following operative measures: puncture, Cesarean section, abdominal or vaginal ovariotomy. The indications for each of these methods are given.

The author concludes with a brief reference to the after-treatment in those cases where the tumor has not been removed during labor.

The discussion on the paper was adjourned.

Meeting of January 5, 1898.

The President, C. J. CULLINGWORTH, M.D., *in the Chair.*

Specimens.—DR. MCCANN: (1) Malignant adenoma of cervix, with microscopical slides; (2) Uterine fibroids. DR. JOHN PHILLIPS: The placenta from a full-term extrauterine fetation, the child being dead and removed by abdominal section five months later; the patient doing well on the seventh day. DR. REMFRY: Hydrocele of the canal of Nuck. DR. CULLINGWORTH: Malignant growth of Fallopian tube.

ADJOURNED DISCUSSION OF DR. MCKERRON'S PAPER ON "THE OBSTRUCTION OF LABOR BY OVARIAN TUMORS IN THE PELVIS."

DR. HERBERT SPENCER recorded a case of ovariotomy during labor which was obstructed by an ovarian dermoid incarcerated in the pelvis. The patient, age 20, had had one dead child previously without difficulty. With the second

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child the labor was obstructed by an ovarian dermoid, weighing sixteen ounces, incarcerated in the pelvis. As the tumor could not be pushed up, laparatomy was performed, the uterus withdrawn from the abdomen, the tumor removed, and the child delivered by forceps applied in the dorsal position. Mother and child recovered. In the treatment of ovarian tumor obstructing labor the author thinks that the tumor should be pushed out of the pelvis if possible, but discards version, forceps, craniotomy, and simple incision or tapping of the tumor, on account of their danger. Cesarean section will be very rarely necessary if the uterus be withdrawn from the abdomen. The author discussed the merits of vaginal and abdominal ovariotomy, and considered that, on the whole, the latter was the preferable operation.

Dr. Herbert Spencer also showed an ovarian dermoid tumor which, becoming incarcerated in the pelvis, obstructed labor. The tumor was pushed up out of the pelvis under chloroform, the child delivered by forceps, and ovariotomy performed seven months later. Mother and child recovered. A skiagram of the tumor was also exhibited.

Dr. Robert Boxall exhibited a tumor (dermoid) of the ovary in which Cesarean section was performed at the end of the first stage of labor and the tumor removed. Both mother and child recovered.

Dr. Herman said that this paper was the fullest account of the complication of labor with ovarian tumor that had yet been given. He agreed in the main with Dr. McKerron's advice. But there was one method of treatment, the credit of which he believed had been given to Fritsch, which he thought deserved fuller consideration and commendation than Dr. McKerron had given to it—viz., the making an incision into the cyst through the vagina and stitching the opening in the cyst to the margins of the vaginal incision. In this way the emptying of the cyst contents outside the peritoneum was secured. If the cyst were a dermoid, as many of the cysts which obstructed labor were, simple tapping was attended with much danger of the cyst contents escaping into the peritoneal cavity. Of 43 cases in Dr. McKerron's paper treated by tapping or incision, 24 died. This danger was avoided by Fritsch's procedure. He (Dr. Herman) did not advise this for tumors that could be pushed up, nor for those which came under the care of experienced operators, in circumstances suitable for the performance of ovariotomy. Many of these cases occurred in the practice of accoucheurs having little or no experience in ovariotomy.

Dr. Playfair said that twenty years had elapsed since he had communicated to the Society the paper he had himself written on this subject. In that he had collected 35 cases, which Dr. McKerron had incorporated with his own. He had tabulated the details of 126 more, making 183 in all. This conclusively showed that this serious complication of labor was by no means so rare as might be anticipated. It is a curious and important fact that the existence of ovarian tumors was only

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suspected in 18 per cent of the cases before labor. Of course, if we did diagnose it during pregnancy, it was now an admitted rule of practice that ovariotomy should be performed without delay, but unhappily the figures showed that this was only exceptionally possible. The explanation of this is probably that it was only very small and freely mobile tumors that could engage in the pelvis and become impacted in front of the presenting part. He did not doubt that, when it was feasible, the best and safest practice was to remove the tumor either by abdominal or vaginal ovariotomy. The reason why he had not recommended this in his former paper was obviously because ovariotomy twenty years ago was on an entirely different footing from the operation at the present day. Then antiseptic precautions were unknown or in their infancy, and laparatomy was a much more serious business than it is now. To do it during the actual progress of labor was a procedure that had never been considered a possibility. He related a case in which induction of labor was performed in preference to laparatomy, with, unhappily, a fatal issue. While admitting that ovariotomy was the best course, he felt that there must always be cases where it could not be judiciously practised. It was obvious that this plan required experience in operating and suitable surroundings in nursing. He did not envy the practitioner who had no experience in abdominal surgery, if suddenly called on to perform such an operation. It behooved us, therefore, when ovariotomy was not feasible, to decide what was the next best course to pursue. Obviously the one thing which should not be done was to leave the case alone in the hope that the fetus might be pushed or drawn past the obstructing tumor. Dr. McKerron showed that in all such cases the mortality is fifty per cent. In his (Dr. Playfair's) paper he had recommended vaginal puncture of the tumor, so that its size should be lessened as much as possible. When this had been done the results had been much more satisfactory, the mortality having been only eighteen per cent.

Dr. Heywood Smith remarked that in 1885 he saw a single woman, æt. 34, who had a small ovarian tumor behind and to the right of the uterus. She married and became pregnant. During the pregnancy he several times pushed the tumor above the uterus. During labor the tumor came down in front of the head, obstructing delivery. He aspirated the cyst and the child was born alive. She again became pregnant and he performed ovariotomy during the third month, and the patient was delivered of a full-sized child

Dr. Horrocks thought the paper valuable, but the statistics of cases quoted were historically interesting rather than having any bearing upon modern treatment. Because the fact that in these days of aseptic operations one could open the abdomen without ill effects renders the question of what to do in cases of tumors obstructing labor capable of being answered quite differently. Twenty years ago and less it would have been wrong to do laparatomy in such cases, because the operation itself

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would have been fatal, in the majority of cases, from sepsis. He failed to see why Cesarean section was performed in Dr. Boxall's case. The method adopted by Dr. Spencer was more scientific and better in every way for the patient. With regard to the question of vaginal *versus* abdominal operations, he certainly thought the latter was preferable, because even in the non-pregnant state vaginal ovariotomy was often most difficult and perplexing, and when pregnancy complicated it all the vessels became enlarged, and hence the hemorrhage might easily become alarming, when it would be difficult and perhaps impossible to catch the bleeding points from the vagina.

Dr. Spencer was glad to find a general agreement that the best treatment of incarcerated ovarian tumors which could not be pushed up was ovariotomy. Cesarean section inflicted an injury on the patient which, in ordinary cases, was quite unnecessary, though it had been recommended in this Society as recently as 1892. He thought the opinion of the Society should go forth that ovariotomy was the proper treatment when practicable.

The President said that it was greatly to be regretted that the author of the paper had not been able to be present at the adjourned discussion. He agreed with Dr. Horrocks that in drawing conclusions from past experience it was necessary to have continually in mind the very different conditions under which operations were performed before and since the introduction of antiseptics. As a large proportion of the ovarian tumors that had been met with as obstructions to delivery had proved to be dermoids, it seemed doubtful whether tapping would always succeed in effecting such a diminution in size as would suffice to overcome the obstruction. Undoubtedly the ideal treatment was the removal of the tumor there and then by abdominal section. Where this was impracticable the proper course, if the tumor could not be pushed out of the way, was to endeavor to deal with it temporarily by tapping or incision per vaginam, and to perform ovariotomy as soon as possible after the labor was over. He did not think the alternative of Cesarean section was to be commended. He concluded by referring to a case he had published in the St. Thomas' Hospital Reports for 1887, page 143, in which abdominal section had been performed on a patient nineteen weeks after delivery, for the removal of a dermoid tumor of the ovary that had caused serious obstruction to delivery, and that had subsequently undergone suppuration and discharge per vaginam through a rent in the posterior wall of the cervical canal.

Meeting of Wednesday, March 2.

The President, C. J. Cullingworth, M.D., *in the Chair.*

Specimens—Mr. Targett (for Dr. Hillier): Deciduoma malignum. Dr. William Duncan: Uterine fibroid with preg-

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nancy. DR. C. H. ROBERTS: Double pyosalpinx with enormous distension of tubes. DR. JOHN PHILLIPS: Fibromyoma of vagina. DR. MACLEAN: Broad-ligament myoma. DR. GOW: Cystic intraligamentous myoma with double uterus. DR. OWEN FOWLER: A two-headed monster. DR. RIVERS POLLOCK: Double ovarian dermoids.

DR. ADDINSELL read a paper on

INTERMENSTRUAL PAIN (MITTELSCHMERZ).

Having alluded to the paper of Sir William Priestley on "Intermenstrual Dysmenorrhea," the author said the present paper was based on cases the chief characteristic of which was pain, varying in intensity, referred to the ovarian region, and recurring with marked regularity fourteen days after the normal menstrual period.

CASE I. was aged 29, unmarried, anemic; she complained of great pain in the hypogastric region, extending over the whole of the lower abdomen, the pain occurring regularly on the twelfth to the fourteenth day after the normal period. There were erosions of the os, anteflexion of the uterus, and an elongated swelling in the left broad ligament, which disappeared after passage of a thin, watery discharge. The "Mittelschmerz" was not benefited by curetting.

CASE II. was aged 31, unmarried, and suffered from constipation. The "Mittelschmerz" occurred on the fourteenth day and lasted two to three days. The uterus contained fibroids and the left Fallopian tube was thickened. Oöphorectomy was performed, and the patient had had no pain or period since.

CASE III. was aged 28. She complained of pain in the left ovarian region twelve or thirteen days after the period; menstruation was normal. She had passed clear, watery fluid during the attack of pain. The uterus (retroflexed) contained fibroids. There was a soft, elastic swelling in the left broad ligament.

CASE IV. was 33 years of age. She had "middle pain" sometimes and complained of discharge of clear fluid, after which the pain was lessened. The author remarked that in Croom's, Priestley's, and his own cases there had been a fulness or a distinct swelling in the broad ligament, which had been the seat of pain.

After considering the views held as to the causation of the "Mittelschmerz," the author concluded that it was due to a painful effort on the part of the tube to expel its contents.

DR. HERMAN preferred the designation "intermediate monthly pain" to "middle pain." He had found that the date of its recurrence varied. He was accustomed to accept the explanation put forward by Sir William Priestley that it was due to monthly recurring painful ovulation. In most, but not all, of the cases he had seen there were signs of old inflammation of the uterine appendages. Adhesions offered a ready explanation of why the ovulation was painful.

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DR. AMAND ROUTH saw no difficulty in explaining this intermenstrual pain if once it could be assumed that in certain cases there was an intermenstrual cycle as well as a menstrual one. The increased tension of a local lesion would give rise to the pain.

MR. BLAND SUTTON remarked that he had long held the view that fluid distensions of the tubes did not discharge themselves into the uterus, and the old notions of intermitting hydro- and pyosalpinx were not sustained by reliable evidence.

DR. BOXALL was of opinion that we are far from being able to fix the cause of intermenstrual pain on any one pelvic lesion. He had seen a case in which there was throughout no sign of tubal disease. The patient became pregnant, but miscarried, and afterward, though she had a fibroid, she had little or no intermenstrual pain.

DR. HEYWOOD SMITH considered the disease was associated with intermittent tubal hydrorrhea.

DR. ARTHUR GILES thought that if a condition of intermittent hydrosalpinx were present, swelling of the uterine mucous membrane during menstruation might lead to temporary occlusion of the uterine ostia of the tubes, and this to accumulation of fluid, which after some days would cause pain.

DR. EWEN MACLEAN thought it possible that some of these cases might be regarded as an attempt at double menstruation.

THE PRESIDENT said that it was evident that the cause of the phenomena was still far from being understood: none of the theories put forward appeared satisfactory. Tubal distension with escape of the contents through the uterine end of it must be an event of extreme rarity. An examination of the author's table did not seem to warrant the statement that "in nearly all the cases a tubal lesion is present," for in only three out of thirteen cases were the tubes known to be diseased. Watery discharges should not readily be regarded as having any pathological significance: he had known urine and even bath water put up in the vagina mistaken for pathological discharge.

DR. ADDINSELL replied and stated that he had satisfied himself that in his case a swelling existed and disappeared after the copious discharge of clear mucus accompanied by pain.

Meeting of Wednesday, April 6.

The President, C. J. CULLINGWORTH, M.D., *in the Chair.*

Specimens.—MR. DAWSON: A uterus with ruptured tubal-gestation sac in which the pregnancy had not advanced beyond the fifteenth day and which terminated fatally from hemorrhage. DR. MACNAUGHTON JONES: A uterine fibroid with anomalous solid ovarian tumor. DR. WALTER TATE: A fibromyoma of the uterus removed by abdominal hysterectomy.

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MR. WALTER HEAPE read a paper on

THE MENSTRUATION AND OVULATION OF MONKEYS AND OF THE HUMAN FEMALE.

1. *Menstruation.*—Mr. Heape described the histological process of menstruation in *Macacus rhesus* as identical with that already described in the Society's Transactions for *Semnopithecus entellus*—viz., a growth of stroma and increase of vessels, a breaking-down of congested vessels and consequent formation of lacunæ, a degeneration of the superficial mucosa and rupture of lacunæ, and a denudation of the superficial portion of the mucosa with consequent formation of a menstrual clot—the only difference of moment being that in *Macacus rhesus* the mucosa is thicker, the protoplasmic network denser, and the glands more numerous and more branched than in *Semnopithecus entellus*.

Sections of human and monkeys' uteri were shown demonstrating these points, and the author was led to infer that in all probability the menstrual process is practically identical in man and monkeys. The author pointed out that although monkeys menstruate all the year round, they (at least some of them) only breed at certain times of the year and thus occupy an intermediate position between the lower mammals and the higher primates. He expressed the opinion that the histological homology of "heat" and menstruation would be established.

2. *Ovulation.*—With regard to the relation between ovulation and menstruation, two divergent views were quoted: the one, that ovulation occurs at each menstrual period and that the two processes are due to the same active cause; the other, that ovulation and menstruation are independent of each other, that they are due to independent stimuli and are coincident only by accident. Out of fifty-nine adult menstruating female monkeys, only one was found with a recently discharged Graafian follicle.

The author summarized his observations by stating that in man and monkeys (1) ovulation and menstruation are not necessarily coincident, (2) menstruation may take place without ovulation, and in man (3) ovulation may occur without menstruation.

The author combated the views that in the lower animals "heat" is brought about by ovulation, and that the ovary is the seat of the stimulus which induces heat. He urged that both menstruation and ovulation are closely connected with and largely influenced by congestion, and that in the primitive condition they were both due to the same cause.

DR. PETER HORROCKS said that in women there was incontestable evidence that ovulation occurred without menstruation, for it was a well-known fact that a woman might conceive without menstruating. Girls in India not infrequently conceived before menstruation began, and a woman, during the amenorrhea associated with lactation, occasionally conceived

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again without menstruating. He did not, however, know any facts which proved that menstruation could take place without ovulation. It was well known that when the ovaries were removed, or if they became wholly degenerated, or if they ceased their function, then menstruation ceased. He could not help feeling that menstruation in women and rut in animals were not the same thing.

DR. HERMAN thought that Mr. Heape's valuable paper went to show how very imperfect was our knowledge of the physiological changes that went on in the ovary. He still thought that menstruation depended, if not upon ovulation, yet upon some ovarian function. He based this opinion upon the broad clinical facts that when the ovaries were absent or ill-developed menstruation was never present, and when both ovaries were removed menstruation always stopped.

THE PRESIDENT made reference to the recent death of Dr. Remfry, assistant obstetric physician to St. George's Hospital, and of Dr. Charles West, a past President and an Honorary Fellow of the Society, and it was agreed that a suitable letter of regret and condolence should be forwarded, in the name of the Society, to Mrs. Remfry and to Mrs. West.

REVIEWS.

DISEASES OF WOMEN. A Clinical Guide to their Diagnosis and Treatment. By C. ERNEST HERMAN, M.B. London, F.R.C.P., Obstetric Physician to, and Lecturer on Midwifery at, the London Hospital; Consulting Physician-Accoucheur to the Tower Hamlets Dispensary; Examiner in Midwifery to the Universities of London and Oxford; late President of the Obstetrical Society of London and of the Hunterian Society; formerly Physician to the General Lying-in Hospital and to the Eastern District of the Royal Maternity Charity; and Examiner in Midwifery to the Royal College of Surgeons. Pp. 886, octavo, profusely illustrated. New York: William Wood & Company, 1898.

This work is decidedly original in its conception and in the manner of its arrangement and expression.

It is straightforward and decided; the author has well-defined opinions of his own and does not hesitate to state them. He looks at his subject from the practical side, and handles it in the same manner that has made his work on "Difficult Labor" so phenomenally successful.

The great prominence given to measures of general therapeusis and management, short of serious surgical intervention, makes the book of greater value to the practitioner in general than to the surgeon.

The arrangement of the work is distinctly novel and certainly possesses clinical advantages. It is divided into eleven parts.

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The first includes an introductory chapter explaining the scope and plan of the book, and chapters on Neurasthenia, Hysteria, Headaches, Pain in the Back, Chronic Abdominal Pain, and Methods of Investigation. Part two discusses the conditions which produce chronic pelvic pain and their treatment; part three takes up pelvic inflammations; part four, internal hemorrhage; part five, bleeding from the uterus; part six, leucorrhea; part seven, vulvar disorders; part eight, disorders of menstruation; part nine, disorders of the sexual functions; part ten, disorders of the parts adjacent to the sexual organs; part eleven, abdominal tumors.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty volumes. Vol. XIII., pp. 602. New York: William Wood & Company, 1898.

Victor C. Vaughan opens this volume with an interesting chapter on ptomains, toxins, and leucomains. Beginning with a general consideration of bacterial poisons, he goes on to a discussion of their various forms and of the various forms of food poisoning and their symptoms and treatment, the poisons of the specific infectious diseases and leucomains. Infection and immunity is discussed by Ernst, of Boston, who gives the latest developments in serum therapy. Water-borne diseases are well described and explained by Hart and Smith, of London; and the duration of the periods of incubation and infectiousness in acute specific diseases by Dawson Williams, of London. All of these subjects are general and in a measure introductory to the more careful study of each specific disease. They occupy two-thirds of the volume and precede the carefully written section on small-pox and vaccinia.

THE YEAR BOOK OF TREATMENT FOR 1898. Pp. 470. Philadelphia: Lea Brothers & Co., 1898.

This little volume, brought out in this country by Lea Brothers & Co., is a well-digested and readable résumé of the therapeutic advances in medical science made during the past year. It is one of the oldest as well as the smallest and most useful of the medical annuals.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Abortion: its Frequency, Causation, and Treatment.—L. M. Bossi[1] reaches the following conclusions in regard to the subject of which he treats: 1. The large number of cases in

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which the cause of spontaneous abortion is unknown induce the belief that the etiology of the occurrence needs further study. 2. The frequency of abortion, as found by the author in statistics furnished by obstetricians in charge of out-practices among the poor, is much greater than that obtained from statistics given from hospital services only and reaches about twenty-five per cent. 3. Clinically the causes may be thus classified: (*a*) Traumatism and accidents of various kinds occurring at the time corresponding to the menstrual period, or, in cases of habitual abortion, occurring at the period of pregnancy in which the previous miscarriage occurred. (*b*) Syphilis or some not well-understood cause, which may be overcome by mercurial treatment, or in some cases by limited doses of the iodide of mercury. (*c*) Chronic affections of the cervix, the cervical canal, or the uterine cavity (cervicitis, endometritis), lacerations of the cervix, and pre-existent lesions of the appendages. (*d*) Retroversion of the uterus, and other anomalies in its form and position. (*e*) Functional affections, deficient resistant force in the mother, grave rise in the mother's temperature, diffusion of infective processes from the mother to the fetus, anomalies in the development of the ovum. 4. The rational prophylaxis of abortion depends upon a knowledge of the causation. 5. In the treatment of abortion we should always endeavor to ascertain whether it is possible to avoid, or, in other words, we should consider it as inevitable only when we find death of the fetus, rupture of the ovum, dilatation of the cervix uteri, descent of the ovum in the cervical canal, and hence total or nearly total detachment from the uterine walls. 6. The treatment of curable abortion is of two kinds: The first, or *general treatment*, includes the administration of opiates, of viburnum prunifolium, tincture of piscidia, hydrastis canadensis, etc. *Treatment directed to the cause* consists of precautions to be taken during the days corresponding to the menstrual period, in antisyphilitic remedies, local treatment for the vaginal and cervical lesions, and the cure of retroversion. prolapsus, etc. 7. Should abortion be inevitable, we must assist the process of detachment and expulsion of the ovum with the minimum possible loss of blood, avoiding every source of infection. To this end hot vaginal douches will be found useful, and the administration of drugs which will not cause contraction of the uterus and incarceration of the ovum, such as hydrastis canadensis, bryonia alba, hamamelis virginica, sugar, small doses of quinine, and tamponing the vagina. To prevent the possibility of any portion of the ovular residua remaining in the uterine cavity, we should be careful not to rupture the ovule when it presents in the cervical canal, not endeavoring to extract it until it is detached from the uterine walls nor without the proper appliances. Should there be the slightest doubt as to its complete removal, the endometrium must be scraped and ergot must be given to the patient. In all cases several disinfectant intrauterine douches should be given.

Theory of the Primitive Germ Layers.—B. Robinson,[1] in

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an article on this subject, states that C. F. Wolff suggested that animals originated from germ layers, and published articles in Latin in 1768 and 1769 in the "Commentaries of St. Petersburg Academy," xii. and xiii. In 1817 Pander published an article on the metamorphosis of a hen's egg during the first five days of incubation. As early as the twelfth hour of incubation Pander noted two layers, viz., a mucous layer, a serous layer, and finally, in the first day. a third layer, the vascular layer arising between the other two. From the blastoderm Pander developed the three embryonic layers of the moderns. In ten years, between 1819–1829, Baer completed the establishment of the three primary germ layers. In scientific achievements Baer has never been surpassed in embryology. He claimed that the two primary germ layers are divided into two sheets—one layer, the animal layer, which is the somato-pleura; the other, the vegetative layer, which is the splanchno-pleura. The animal layer had an endoderm and a mesoderm. Baer really founded modern embryology. Schwann in 1838 established the doctrine of cell action. In 1850 Remak showed that out of the endoderm (hypoblast) there proceeded only the epithelial and glandular cells of the intestinal tube and its appendages. From the ectoderm (epiblast) there proceeded the epithelial cells of the epidermis, the nerve tissue, and the sensory organs. From the mesoderm (mesoblast) there arose the blood, the genito-urinary organs, muscular tissue, and the mechanically sustentative substance of the body. Remak designated the three fundamental, primitive germ layers as sensorial (ectoderm, epiblast), motor germinative (mesoderm, mesoblast), and trophic (endoderm, hypoblast). Horvalewsky produced the foundation facts on which the gastrula theory rests. He also established the fact that the body cavity is the result of an enterocele, or the evagination of the endoderm. Among others mentioned in this article were Huxley, Haeckel, Metschnikoff, Hertwig brothers, etc., etc.

Spontaneous Rupture of the Uterus.—The etiology of spontaneous rupture of the uterus is not as yet wholly clear, although numerous observers have busied themselves with investigating its cause. The theory of Bandl, who ascribes it to mechanical forces, is unquestionably probable, but in looking through the literature one meets numerous cases in which a diseased condition of the uterine walls appears to have predisposed to, if it was not the sole cause for, the rupture. Poroschin[1] enriches the literature by a new case occurring in the private clinic of Slavianski, of St. Petersburg, and which apparently supports both theories. A IIpara 45 years old entered the clinic stating that her previous confinements had all been normal and were completed without medical aid. She was at the end of pregnancy. Fetal heart sounds could not be heard, and upon questioning she admitted that two days before she had fallen upon her back and since then the child's movements had ceased. The fall was unaccompanied by pain and followed by no bleeding. The head was movable above the brim; the os

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admitted two fingers; membranes not ruptured. Slight labor pains were present, which a few hours later became stronger, but were never excessively severe. Suddenly, during the height of a pain, the patient exclaimed and complained of severe abdominal pain. Immediately after this the pulse became rapid and feeble and the woman looked bad. The contours of the abdomen underwent a change, its circumference increased, and the uterus became painful and distended. The os being fully dilated, the tense membranes were ruptured, and a few minutes later a large dead child was expressed, the delivery of the child being followed by rather severe hemorrhage. The placenta and large masses of coagulated blood were removed by Credé's method. The uterus remained in an atonic condition, but the usual remedies sufficed to stop the bleeding. A few hours postpartum the woman expired with symptoms of general anemia and heart failure. A postmortem showed the uterine muscularis to be pale and anemic, and its structure of an abnormally hard and firm consistence. Upon its posterior wall, in the location of the placenta, an irregular tear was noticed extending through the mucous membrane and muscular layers, but not including the peritoneum. A microscopical examination of the uterus showed the absence of degenerative processes, but the elastic structures seemed to be deficient. Poroschin believes that the deficiency of the latter was largely responsible for the accident. The importance of the fall must also not be overlooked, the uterus being forced against the vertebral column, causing a sudden strain upon its structures and a tearing of the internal layers; at the same time a hemorrhage took place which, owing to the absence of large blood vessels in the region of the tear, was trifling, but it sufficed to detach the placenta in part and cause the death of the fetus. With the increasing severity of the pains the tear extended, the hemorrhage became stronger, and finally the whole placenta became detached, resulting in the woman's death from internal hemorrhage.

Formation of Syncytium in the Glands of the Uterine Mucous Membrane in Ectopic Pregnancy.—The source of the syncytial covering of the chorionic villi has been widely discussed, some authors believing that it originates from the surface and glandular epithelium of the uterine mucous membrane, while others trace it to the ectoderm of the fetus. Schmidt[4] has carefully investigated a case of tubal pregnancy ending fatally in the sixth month, and in which the uterine mucous membrane showed the unquestionable presence of syncytium. The syncytium is found in the glands of the spongy layer. Syncytial transformation of the decidua uterina in ectopic pregnancy has never before been observed; this can possibly be explained by the fact that investigations were mostly made upon cases of an earlier period.

Cesarean Section.—Kettlitz[5] has collected from the literature at his disposal 27 cases of Cesarean section in which the indications for the operation were an existing eclampsia. To

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this number is added a new case operated upon in the Maternity Hospital of Halle. From a study of all these cases Kettlitz concludes that the mortality of Cesarean section, if performed in eclampsia, is very high. This mortality, however, is not due to the operation, but to the eclampsia. Eclamptic attacks cease after Cesarean section in about the same proportion of cases as after other methods of delivery. In cases of eclampsia it is at times impossible to deliver a child per vias naturales. Kettlitz believes that Cesarean section should be restricted to, and performed only in, this class of cases.

Seiffart [6] reports a case of vaginal Cesarean section for cancer of the uterus followed by immediate removal of the whole uterus. He secured a living child, but the mother died the second day after the operation from heart failure. Seiffart states that in future he will not immediately remove the uterus, except under most favorable conditions—that is, a small child, large vagina, and limited extension of the growth. In other cases he will deliver the child and postpone the removal of the uterus until the woman has regained her strength.

W. Varian [7] reports the case of a patient on whom he performed Cesarean section and, seven months later, ovariotomy.

In commenting upon the transverse incision into the fundus as recommended by Fritsch, Mueller [8] states that he does not doubt the advantages of this method. He has abandoned the anterior vertical incision, and for some time has opened the fundus by a sagittal incision. In the thicker walls of the fundus a more secure and firm union can be obtained than in the thinner and distended uterine segment. There is no more liability to hemorrhage and the child may be extracted with equal ease. This method has been practised in the clinic of Berne during the last six and a half years, and in one case, which again became pregnant, there was no disturbance during pregnancy or labor referable to the old scar.

Clemenz [9] reports a conservative Cesarean section with transverse incision of the fundus after Fritsch, and is very enthusiastic over the advantages of this method. The hemorrhage was trifling and stopped entirely after the emptying of the uterus, although there was no compression of the cervix by either hand or elastic tube. The feet of the child, which presented by the vertex, were seized and extracted with surprising ease. The rapidity with which the uterine wound contracted and became smaller was astonishing, and Clemenz experienced no difficulty in closing the wound.

Schröder [10] publishes 4 new cases operated upon after Fritsch's method in the University Clinic in Bonn, which further illustrate the advantages of this modification. The ease with which the child could be delivered was astonishing. In one case the child slid out of the uterus by its own gravity, the operation being performed with pelvic elevation. The uterus contracted rapidly, and hemorrhage stopped immediately after placing a ligature at each angle of the wound. The uterus was replaced in the abdominal cavity after the removal of the

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fetus and placenta, only the fundus remaining outside, held by the two aforementioned ligatures. Another advantage of this incision and pelvic elevation consists in the fact that in case of intrauterine bleeding the blood gravitates toward the fundus and thus cannot escape observation. The digital compression of the cervix, if desired, is also facilitated through this method, because the hand of the assistant does not interfere with the closure of the wound and can be left undisturbed. The smaller abdominal incision lessens the liability to abdominal hernia. The first case, operated upon and published by Fritsch, is again pregnant, showing that there is only small liability, if any, of injury to the tubes.

Symphyseotomy.—Bettino Pozzoli,[11] in the course of a long article upon this subject, says that the operation is neither easy nor of rapid performance. In order that it should give the best results it should never be undertaken as an operation of urgency. The scrupulous antisepsis which it requires necessitates preparations as long and as minute as in the case of Cesarean section. Neither can we always foresee what unexpected developments may occur to prolong the procedure. Olshausen reports a case in which, after having partly cut through the symphysis, he came up against bone which had to be sawn through in the most laborious manner. There may have been ossification, or, more likely, considerable obliquity of the symphysis, or an abnormal position associated with uncommon smallness of the articular cartilages. In the examination of two hundred female cadavers Queirel found a deviation of the symphysis to the right, and more frequently to the left, in many cases, but did not discover any cases of ossification. However that may be, the condition is liable to complicate the operation and to endanger the life of the fetus. Symphyseotomy should be undertaken only when the fetus is alive, and its vitality should in no wise be endangered. Another contraindication to symphyseotomy is beginning septicemia. In this connection Pinard says: "I believe that in the case of a patient who is otherwise a proper subject for the operation, if the uterus be infected, it is better to perform gastrohysterectomy followed by total hysterectomy, rather than to undertake the temporary enlargement of the pelvis." As a rule, also, primiparæ should not be subjected to symphyseotomy, on account of the greater resistance of the tissues and the consequent danger of laceration and hemorrhage. A first labor, says Mullerheim, should in one sense be an experiment. When the uterus has once or twice proved itself insufficient to the overcoming of the obstacle to birth, the fetuses becoming larger with each successive pregnancy, we can then feel a greater certainty of the necessity for interference. Mullerheim adds that another contraindication consists in any sort of laborious avocation followed by the patient, as in that case she will usually prefer the preservation of the power to work to the life of the child. As to the difficulties of the operation, the author, while granting that an intelligent practitioner can overcome them, believes that just as Cesarean

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section is not resorted to habitually in private practice, so symphyseotomy should be reserved for cases which can be performed in hospitals where are found all the conditions necessary to secure the best results. Within proper limits the operation is of value and may save the lives of infants which would not have survived the application of the forceps nor version, and it is unattended by grave danger to the mother.

Puerperal Eclampsia.—H. S. Trueman[9] believes it is accepted by all that eclampsia is due to some form of urinary excrement retained in the blood, which poisons the centres in the spinal cord and brain. He states that there are usually warning symptoms some little time before the attack; these are various nervous disturbances, such as irritability, apathy, difficulty of seeing, slight deafness, severe epigastric pain noted by some, acute headache. The pulse may be slow or rapid, but is usually of high tension. If the woman is in labor the pains are irregular. When the fit commences the muscles of face and neck are first affected, the eyelids wink rapidly, face twitches, the eyes roll, the head and mouth are drawn to one side; the limbs and trunk soon participate in the convulsions, causing a twitching and jerking over the entire body. The patient next goes into a condition of general muscular rigidity, the tongue protrudes, the saliva is frothy and may be bloody. The condition of rigidity is soon relaxed and a succession of jerks and shocks follows; this period generally lasts several minutes. The respiration and circulation are so greatly interfered with by the violence of the attack that the veins become greatly swollen with dark blood. The rectum, bladder, and stomach frequently empty themselves. If in labor the child may be rapidly forced out. During the attack the patient is completely unconscious. As a preventive measure all meats or stimulating foods should be stopped and patient placed on a milk diet, given laxatives, hot baths, and hot-air sweats. When woman is in labor and convulsions occur, the labor should be terminated as rapidly as possible. Bleeding, to be of use, must be prompt, and from sixteen to twenty-four ounces should be quickly drawn. The administration of chloroform should have a prominent place because of its power to control convulsions. Nitroglycerin and veratrum viride may be used where bleeding cannot be. Chloral and one of the bromides combined in doses of from thirty to forty grains each should be given by rectum every two or three hours.

Use of the Obstetric Forceps.—P. Michinard[10] advises the use of the forceps in convulsions, hemorrhage, feebleness due to cardiac or pulmonary disease, prolapse of the cord when the head is engaged at the lower brim, dystocia due either to pelvic or perineal resistance, exceptionally to some breech cases. When there is a history of idiocy or epilepsy he applies the forceps at the slightest indication of pelvic compression. The traction should be made with the forearms, not with the entire body. Until the floor of the pelvis is reached by the infant head the traction should be directed downward and backward.

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then the traction should be forward until the head has advanced a little further, when the direction should be upward and forward.

Postpartum Hemorrhage.—S. S. Crockett [13] believes that postpartum hemorrhage can best be prevented by not permitting the patient or uterus to become exhausted. If continued manual pressure be made on the fundus throughout the third stage of labor the large majority of cases of hemorrhage will be prevented. Direct stimulation of the uterus by kneading the fundus is usually instantly followed by firm contraction and arrest of the bleeding. If kneading fails, try hot water at a temperature of from 110° to 120° F. Ergot should be given as soon as the placenta is born. Sterilized gauze, preferably iodoform gauze, may be used to pack the uterus where the hemorrhage results from some mechanical yet irremovable obstruction. When hemorrhage is due to uterine relaxation, prolonged manual compression or the use of styptics becomes the only recourse.

Puerperal Fever.—E. Kershaw [14] reports a case of puerperal fever treated by three doses of Pasteur's antistreptococcic serum. The patient's general condition improved after each dose, and after the last dose her temperature fell to 97.8° and convalescence set in.

A. C. Vietor [15] reports a case of septicemia treated with streptococcus antitoxin with good results.

Transverse Engagement of the Occiput.—Motta [16] reports 83 cases from the Dresden Maternity Hospital. Their analysis demonstrates that this presentation, rarely mentioned in the American text books, is far from normal and presents a most unfavorable prognosis for the child. In this anomalous position the sagittal suture occupies a transverse direction in the pelvis, the parietal bone nearest the promontory lying above the pelvic inlet. The position is especially frequent in pelvic contraction, according to Litzmann in 10 per cent, but Motta found that in only 2 of the 83 cases was the pelvis normal. In 12 cases labor terminated spontaneously; in 71 cases operative interference became necessary. This comprised every known obstetric operation, but it appears that many were necessitated as much through pelvic contraction as by the position of the head. The infant mortality is rather high, only 34 leaving the hospital alive. The mothers were all discharged cured; complications of the puerperium, however, were abnormally frequent. An expectant plan of treatment is strongly advised. The membranes should be preserved as long as possible, which can largely be aided by the introduction of the colpeurynter.

Laceration of the Rectum above the Sphincter during Spontaneous Delivery.—Gmeiner [17] reports a very interesting case which was observed in the Maternity Hospital in Prague. A primipara 21 years old, who had a normal pelvis, entered the clinic during the first stage. The fetus presented in the first head presentation; the membranes were not ruptured.

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An internal examination showed nothing abnormal. After the membranes had ruptured the head rapidly descended to the pelvic floor, and it was then observed that during the pains a jet of liquor amnii was forced from the rectum. To hasten delivery and prevent further injury the vulva was enlarged by a lateral incision; this was followed by the expulsion of a child of moderate size. A subsequent examination showed a deep tear in the posterior vaginal wall which communicated in three places with the rectum. The latter openings, as well as the vaginal wound and also the lateral incision, were united by catgut sutures and healed per primam.

Eutocia.—A. F. Myers[17] reports two cases of labor where the mature fetuses were expelled with the membranes intact. Both children were born dead.

Otocephalic Monster.—M. H Fussell[18] describes a monstrosity, the body of which was normal, but whose head was malformed. It had no eyes, but a median slit on what would correspond with the forehead. This slit was three-eighths of an inch long. There was no trace of a nose. One inch below the orbit was the opening of the mouth; the lips of this opening were like the normal lips. On the right, on a level with the mouth, was a malformed ear. One-half inch to the right of the right end of the mouth the auditory canal ended in a cul-de-sac. Between the ear and mouth was a fleshy teat. On the top of the head there was a heart-shaped sac containing fluid and measuring six and a half inches in its longest diameter. The superior bones of the skull were absent. The tongue was absent, as were also the upper and lower jaws. There was no opening between the mouth cavity and the gullet. The brain was rudimentary in structure.

GYNECOLOGY AND ABDOMINAL SURGERY.

Asepsis and Antisepsis.—B. Sherwood-Dunn[19] states that to render the hands sterile they must be scrubbed with soap and water, then scrubbed with alcohol or ether for a full minute, then soaked in a 1 : 1000 bichloride solution. If the operator has operated or dressed a wound discharging pus, he should sterilize the hands further by soaking them in potassium permanganate solution, followed by oxalic acid to remove the color. Instruments are rendered sterile by boiling for five minutes in water; carbonate of soda, sufficient to make a one per cent solution, added to the water prevents their rusting. The operating room should be large, well ventilated, and properly heated by steam, and so built and of such material as to permit of frequent washing. The field of operation should be thoroughly scrubbed with hot water and soap by aid of a hand brush, and if the operation should be where hair is situated the hair should be completely removed. After the scrubbing with soap rub the surface with ether, and finally with a 1 : 1000 solution of bichloride. If the operation is on the vagina the toilet may be confined to soap and flushing out with a 1 : 2000 bichloride

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solution. The field of operation should be surrounded with sterilized towels. Basins of sterile water or normal salt solution, frequently changed, should be near to the hand of the operator and assistants, in which they can wash the blood from their hands. Sherwood-Dunn has used solutions of bichloride ranging from 1 : 1000 to 1 : 2000 without any objectionable results. Betanaphthol promises to occupy an important place in abdominal surgery because of its non-toxic properties. Peroxide of hydrogen and acetanilid in glycerin have been recommended to arrest suppuration in cavities. In operating on the bladder rubber instruments can be rendered aseptic by soaking in 1 : 20 carbolic solution or they can be boiled. For lubricating purposes freshly prepared carbolized olive oil, 1 : 30 or 1 : 40, or aqueous solution of boric acid, 1 drachm to the ounce, or carbolized vaselin. In irrigating bladder one can use a potassium permanganate solution 1 : 10, or 1 : 10 boracic acid; hydrogen peroxide, 1 : 10 to 1 : 2, or sublimate 1 : 50,000 to 1 : 20,000. In Paris clinics salol, iodol, and carbolized gauze have been tried and found inferior to iodoform and bichloride. For washing the peritoneal cavity use sterilized water at 110° to 115° F. with 6 : 1000 chloride of sodium. The only practical clinical results obtained with intestinal antiseptics thus far have been those derived from the insoluble varieties—namely, subnitrate of bismuth, carbonate of magnesia, naphthol, benzonaphthol, salol, etc. The experiments of Prof. Fournier, of Paris, have shown that a solution of bicarbonate of soda is sure death to the gonococcus.

Infection and Inflammation of the Reproductive Organs.—E. C. Dudley [20] believes it is important to remember that the study of infection of an organ or group of organs is simply the study of their anatomy and physiology as modified by that infection. The inflammatory process has been defined as the reaction which living tissue exhibits to morbid irritation. This definition being correct, two conditions are essential—namely, the soil must be ready to react to the morbid irritation; the irritating influences must be present. The causes may be divided into predisposing and exciting. The systemic predisposing causes include whatever tends to render the system less resistant to morbid influences, as anemia, diabetes, rheumatism, and the like. The local predisposing causes comprise whatever contributes to make the organ an accessible and receptive soil for infection, as traumatisms, parturition, etc. The exciting causes comprise agents which have the power to produce and to maintain morbid irritation. as pathogenic microbes. Among the pathogenic microbes frequently found in the genitals are the staphylococci and streptococci of suppuration, bacillus of tuberculosis, gonococcus, etc.

The gonococcus of Neisser is one of the most frequent, destructive, and insidious factors in genito-urinary infection. Its chief power for harm lies in the lasting vitality of the germ long after apparent cure. The gonococcus may remain inactive in the mucous crypts, liable at any time, even while quies-

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cent in the individual, to be communicated to another. Hence many an innocent and previously healthy woman, shortly after marriage to a man who supposed himself to have been cured of gonorrhea years before, may, by contact with the attenuated virus, get a destructive gonorrheal infection of the genito-urinary organs. A direct experiment from pure culture from a gleety discharge of two years' standing gave the following interesting results: 1. Attempted reinfection of the original urethra with this culture was always a failure. 2. The culture when transplanted to a coccus-free urethra produced typical acute gonorrhea. 3. Infection from this back again to the original urethra gave a fresh gonorrhea, which, after a typical acute course of five or six weeks, again subsided into a chronic gleet. Thus by passing the gonococci through another individual—that is, through a new culture ground—they become again virulent to the urethra which was invulnerable to them before. This explains the fact that an apparently healthy subject of chronic gonorrhea may infect his hitherto uninfected wife and become again infected from her. The bacterial invasion and consequent infection may spread either by continuation of surface tissue or by the lymphatics or blood vessels. If infection is often transmitted from the genitals by way of the lymph vessels to the inguinal glands—the bubo is proof of this—it is evident that it may also travel by way of the lymph vessels a much shorter distance from the vagina or cervix to the parametria, perimetria, and tubes. Infection by the veins is especially common in puerperal cases. It has often produced general septicemia and pyemia through very slight lesions. The inflammation is either acute or chronic. When the infection is of such virulence or of such character as to call forth the defensive process, which consists in an effort to circumscribe the disease by a limiting membrane of exudate and to produce blood stasis with more or less severe swelling, pain, heat, and redness, and finally to produce local destruction, the inflammation is called acute.

Ovariotomy.—D'Arcy Power[21] reports the case of a child 4 months old on whom ovariotomy was performed with success. An incision three inches long was made in the median line above the umbilicus, and two pints of a clear yellow fluid were drawn off. The cyst was attached by a pedicle, which was tied off in the usual manner. Recovery uneventful.

Abdominal Section.—Frederick Treves[21] discusses abdominal section as a medical means. He states that in a list of 308 cases of tubercular peritonitis compiled by Adlebert, 69.8 per cent of the cases were cured by simple incision. The incisions made by mistake can claim some of the most brilliant achievements of surgery in connection with tuberculous peritonitis. Mere incision into the abdomen has led to rapid shrinking of certain malignant growths. Another class of cases in which relief follows abdominal section is illustrated by a large class of cases called nervous. These may be divided into two categories—those imitating diseases, and those in which the clinical

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phenomena are simply bizarre and fantastic. In certain cases of obstinate constipation operation has to be resorted to after all ordinary measures have failed.

Treatment of Appendicitis.—J. A. Goggans[13] advises operation in mild cases if there is pain in the region of the appendix at the end of two weeks; but if there is complete recovery he waits for a second attack, and if this attack is mild he waits until the acute symptoms have subsided and then he operates. When the attack of appendicitis comes on suddenly and is severe, with high temperature and rapid pulse—perhaps these symptoms have been preceded by a chill, respiratory frequency, and the gray, anxious expression of sepsis—the only chance for life is an immediate operation. He gives the analysis of fourteen cases, in all of which the appendix was ruptured and gangrenous. All but one of the cases recovered after the operation.

Floating or Movable Kidney.—J. B. Harvie[14] reports a case that came under his observation of a woman who suffered with recurring attacks of hydronephrosis. The kidney, in the intervals between the attacks, descended in the standing position into the iliac fossa and could be pushed up under the ribs. He operated, and found that she had a horseshoe kidney, which he attached in the ordinary way. In anchoring a kidney he divides the fatty capsule in the long axis of the kidney, and folds it backward so that the free kidney border may be brought in contact with the lumbar muscles for anchorage. He does not peel off the capsule, but simply scores it by making two parallel lines about one inch in length and corresponding to the area where the sutures are to be passed. The fatty capsule, when folded back and no part of it is sacrificed, constitutes a protection and support to the organ, inasmuch as it forms attachment in the line of the incision, which subsequently acts as an important factor in its anchorage.

Urethral Catheters.—E. Reynolds[15] believes the importance of examining the urine separately from the two ureters rests upon the fact that it enables us to isolate the disease and determine the condition of both kidneys. The following points may be brought out by its use: 1. The symptoms may be transposed—that is, the pain and tenderness may be referred by the patient to the comparatively sound kidney. 2. There may be a transitory inflammatory affection of the sound kidney which should lead us to defer operation until it has passed away. 3. The choice between nephrotomy and nephrectomy, and sometimes the decision as to whether any operation is or is not permissible, should be decided by a comparison of the relative condition of the two kidneys. 4. In cases of renal calculus the question between nephrolithotomy and nephrectomy must depend largely upon whether the condition of the affected kidney affords a prospect of good healing and a useful kidney after nephrotomy.

Extrauterine Pregnancy.—Bernhart.[16] The etiology of this type of pathological pregnancy is as yet unknown. It is,

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however, probable that the wanderings of the impregnated ovum are impeded by pelvic adhesions and pathological changes within the Fallopian tubes. In the beginning the subjective symptoms of extrauterine pregnancy are identical with those of normal gestation. Nausea, vomiting, disturbances of the rectum and bladder, prostration, and abdominal pains are frequently complained of, but these are also common symptoms of normal pregnancy. The statements regarding menstruation are not reliable and too much dependence should not be placed upon them. Far more important are the objective symptoms—the changes in the breasts, such as pigmentation, enlargement and prominence of Montgomery's glands; further, the venous congestion and succulent condition of the external and internal genitals. Pulsation of the uterine arteries and enlargement of the organ are symptoms which point with almost absolute certainty to an existing pregnancy. If such symptoms are accompanied by a pelvic tumor lateral or posterior to the uterus, painful upon pressure, and of a doughy consistence, the diagnosis of extrauterine pregnancy is almost certain, especially if the tumor corresponds in size to the presumed period of pregnancy. In the second half of pregnancy a positive diagnosis can be made. Adjoining the apparently pregnant uterus is found a tumor corresponding in size to the time of pregnancy, and within the latter fetal parts can plainly be felt and its heart sounds are heard. Under such conditions the diagnosis is clear. However, men of wide experience have erred, and retroflexion of the gravid uterus has not infrequently been taken for extrauterine pregnancy. Even cases of normal pregnancy have been operated upon, with disastrous results to the patient. If let alone the fetus may die before or at full term, may be reabsorbed or transformed into a lithopedion. The latter process is not so harmless as is commonly supposed, because it may be followed by abscesses perforating into the abdomen, bladder, intestines, etc. Another possibility is a pelvic hematocele, and finally there may occur a rupture, which is the most serious and also the most frequent outcome of this condition, causing death from internal hemorrhage or sepsis. The symptoms of hemorrhage are quite characteristic. Apparently healthy women who have missed a period, or in whom a delay of a few days has occurred, suddenly collapse and are stricken down as though by lightning from a clear sky. The symptoms of anemia acutissima rapidly make their appearance. The localization of the pain soon directs attention to the abdomen and to the discovery of an acute localized peritonitis and the presence of fluid. If these symptoms are corroborated through an internal examination the diagnosis of extrauterine pregnancy is certain and beyond doubt. While expectant treatment was largely in vogue the prognosis was very grave, about 75 per cent of the cases ending fatally; but since the modern view, which compares an extrauterine pregnancy to a malignant growth, has been more widely adopted, the mortality does not exceed 25 per cent. The method of destroying the

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fetus by injections of morphine is not reliable and should not be recommended, because fetal death does not prevent or protect from internal hemorrhage. The ideal treatment consists in the earliest and most thorough removal of the fetal sac. The author advises operation even in the most desperate cases, and he rightly says that nothing is more depressing and humiliating than to sit by the bedside and see the patient's life slowly ebb away. The author reports a number of cases illustrating the various types, and these, together with the exhaustive discussion, make this a paper of more than usual interest and value.

Infection of Granulating Wounds.—Noetzel[25] attempted to inoculate freshly granulating wounds with virulent cultures of anthrax bacilli, but. if the granulations were intact, always failed to infect the animal (sheep). Slight injuries, caused, for instance, through change of dressing, sufficed to communicate the disease. Inoculations with tetanus bacilli gave the same results. Noetzel believes that the sources of immunity are the protective barrier of granulations, the bactericidal action of the exudation, and finally, to a lesser degree, phagocytosis.

The Treatment of Gonorrhea in Women.—Referring to the recent discussion in the Berlin Medical Society as to the treatment of gonorrhea in women, and especially in prostitutes, Neisser[26] publishes the following statements: Not every affection of the uterus or adnexa following or originally caused by gonococci continues or should always be classed as a gonorrheal infection. Although appropriate treatment can destroy the source of infection, pathological changes may continue to exist. It has never been proven, and is certainly untrue, that every or even most cases of gonorrhea lead to an infection of the uterus or adnexa. Neisser states that he can prove this statement by a number of cases carefully observed by himself and other competent gynecologists. His own experience leads to the conclusion that the subsequent involvement of the uterus and pelvic organs is rather rare, but he states that this is possibly due to early recognition and immediate and appropriate private treatment of the cases coming under his care. Neisser is not an advocate of expectant treatment, but advises a careful and thorough bactericidal therapy of both the urethra and cervical canal. Patients should only be discharged after a microscopical examination of the secretion shows absolutely the absence of gonococci. Neisser advises the use of ichthyol instead of silver salts. the former being less irritant while both prolonged and active in effect. The author admits the difficulties encountered in the treatment of gonorrhea in woman. The urethral mucous membrane cannot be distended through fluids injected, as in man, owing to its numerous folds and the absence of a closing sphincter.

Thus prolonged injections, which constitute the most valuable and convenient method of treatment in man, are absolutely impractical in woman. The treatment with urethral bougies. although far from being perfect, is the best known

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method at the present time. It has the advantages of prolonged action and of bringing the diseased surfaces in close contact with the medicinal agent. Applications to the cervical canal are easy, but are accompanied by the danger of spreading the infection to the uterine cavity. Neisser, however, believes that the invasion of the uterus is not so much due to the treatment as to the late stages at which the patients apply and undergo appropriate treatment. And, furthermore, the results of expectant treatment are so deplorable that even the slight amelioration following upon active interference should be encouraged, as it may ultimately lead to more perfect methods and corresponding improvements in results.

Epithelioma Malignum of the Chorion.—Marchand," referring to his own investigations and the publications of Sänger and Pfeifer, states that the so-called malignant deciduomata are of an epithelial character, originating from an excessive proliferation of the epithelial covering of the chorionic villi. The recent literature contains numerous reports confirming the epithelial character of these tumors. But opinions still differ about the so-called syncytium and Langhans' cell layer. Marchand, Strahl, Kossmann, and others believe that the syncytium is derived from the uterine epithelium of the mother, while the cell layer is a product of the fetal ectoderm. According to this the tumors would be both of maternal and fetal origin. It is impossible at the present time to finally settle this question. because equally competent investigators have arrived at widely differing conclusions. Peters, who examined a very early ovum still attached to the uterine walls, is absolutely certain of the fetal origin of the syncytial layer, while Spee attempts to prove its maternal and non-epithelial character. Johansen traces both layers of the chorionic covering to the maternal connective tissue, and Franqué is certain that it is a fetal structure and a product of the mesoderm. In the recently investigated cases the new growth followed molar pregnancy. In the first case the mole was expelled at the end of the third month, preceded by hemorrhage, after which the uterus was thoroughly curetted. Temporary good health, bleeding three weeks later, the woman's general health becoming seriously affected. The uterus was again curetted. An examination of the material removed showed some hydatid villi, pronounced epithelial proliferation. The uterus was extirpated; the fundus contained a new growth about the size of a cherry. The surrounding venous structures showed remnants of chorionic villi, the epithelium of the latter having proliferated and invaded the surrounding tissues. The woman was discharged cured and the disease did not return.

The second case concerns a young woman, 22 years old, who had a molar pregnancy of four months' duration. Three months after its removal she suffered from irregular bleeding, whereupon she was carefully curetted, but nothing beyond healthy mucous membrane was obtained. Some time after this the bleeding reappeared, and now a new growth was dis-

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covered in the anterior vaginal wall. The uterine mucous membrane contained similar structures. In this case hysterectomy could not be performed, because the parametrium was already involved and the lungs were affected. A subsequent postmortem showed the uterus to be immensely enlarged and infiltrated with hemorrhagic structures arising from the placental site. The vagina, labia, bladder, ovaries, and also the lungs and neighboring lymph channels, showed numerous metastases, the microscopical examination of these structures resulting in pictures differing widely from those in the first case. A coherent syncytial framework was absent, the tumor being formed by a mass of isolated cells extending into the surrounding structures. The infiltration closely resembled the serotina of hydatid moles. Fränkel, in his description of the malignant growth of the chorionic epithelium, has laid great stress upon the fact that these tumors may assume different characters, the one type being formed by syncytial masses, including masses of polyhedric cells and numerous mitoses, the other of isolated cells extending into the serotina and corresponding to epithelial elements. The much-discussed question whether malignant epitheliomata of the chorion should be classed as carcinomata is not an important one, because, after all, only a name is involved. But the statement of Kossmann, who believes them to be ordinary carcinomata in which their epithelium undergoes the same changes as the other epithelium of the puerperal uterus, is certainly an erroneous one. The atypical form—that is, the last-mentioned type—may resemble carcinomata, but they differ by their diffuse infiltration and their rapid invasion into the surrounding blood vessels.

Trantenroth[4] publishes two new cases which form an interesting addition to the already voluminous literature. Both cases present the characteristic history of irregular uterine bleeding following the shortly preceding confinement or abortion. The malignancy of these growths is exemplified by their invasion of the surrounding lymph channels and organs. All metastases show the typical structure of the tumor and its syncytial and ectodermal elements. The channels which the disseminated tumor elements have travelled are marked by extensive hemorrhages and necroses.

Perforation of the Uterus.—Jahreiss[5] reports two cases in which, while curetting the uterus, the instrument passed into and apparently through the uterine wall. He observed that in both cases the instrument passed in an oblique direction, and believes that the instrument entered the dilated Fallopian tube. Except some bleeding in the second case, which, however, was easily arrested, there were no symptoms following the accident. Jahreiss also mentions a third case in which he perforated an atrophic uterus with the uterine sound. This was followed by slight localized peritoneal irritation, but at a laparatomy performed for other reasons four days later the only evidence of the perforation was a slight discoloration and thickening.

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Hernia of the Bladder.—The observation of a case of hernia which contained the urinary bladder caused Brunner [9] to collect and study the literature pertaining to this subject. He collected 180 cases. Cystocele may occur in three different anatomical forms—namely, the extraperitoneal, the paraperitoneal, and the intraperitoneal. In the first type the bladder passes through the hernial opening without being accompanied by peritoneum; in the second, which is the most frequent variety, a hernial sac contains, besides other structures, the urinary bladder; while in the third type that part of the bladder which is covered by peritoneum occupies the sac. The diagnosis of cystocele is difficult and can rarely be made until the contents of the sac are exposed. The prognosis of the operation depends on whether the bladder is or is not injured. Of 45 cases in which the bladder was recognized and not injured, only 3 ended fatally, while out of 81 in which the bladder was injured 21 ended fatally.

Dilatation and Digital Exploration of the Uterine Cavity.—Sänger [8] dwells upon the value and importance of exploring the interior of the uterus with the finger instead of using the sound or curette. It avoids the danger of perforation and enables one to gain a better knowledge of the condition of the uterine walls. Laminaria tents are advocated as dilators. In cases of suspected malignant disease the diagnostic curettement is superior to a digital exploration, but the best results are obtained through the employment of both. Sänger states that digital explorations of the uterus can be performed without anesthesia. Such statements are of little value, because much depends upon the class of patients one has to deal with.

The Present Status of the Vaginal Operation for Diseases of the Pelvic Organs.—Edwin B. Cragin [10] says that the time has come for a careful revision of our experience with the vaginal operation and a calm judgment of its utility. By the vaginal operation he means the direction of attack and procedure in different operations upon the pelvic organs—draining abscesses or inflammatory exudates, removing tumors, the uterus, or the appendages. It is not denied by the author that the vaginal operation is a difficult one, requiring more practice to become familiar with it than the abdominal operation; but experience removes the difficulties and practice gives dexterity. Hemorrhage and injury to the neighboring viscera, with resulting fistulæ, are perhaps more frequent in this than in the other method; but as experience has increased and we have better learned to judge the class of cases suitable for vaginal attack, the control of hemorrhage has been found to cause little more trouble than in the abdominal operation. Experience and the selection of cases suitable for the method have also helped to overcome the complication of rectal fistulæ. Dr Cragin believes that the vaginal method is, in properly selected cases, accompanied by less shock, and that the mortality is less and the convalescence smoother. Cases found suitable by the author for the application of this method, aside from operation

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for removal of the uterus and appendages, include such operations as removal of the vermiform appendix, removal of a displaced kidney, myomectomy at the fundus of the uterus, etc. Except in the case of small ovarian tumors, *if the uterus is not to be removed*, the abdominal operation is to be preferred for the removal of one or both appendages. Small ovarian cysts and prolapsed diseased ovaries requiring removal form a class of cases often well adapted to the vaginal operation. In three groups of cases the vaginal operation has, in the author's experience, proved a great boon to suffering women: 1. Pus cases in which removal of the uterus and appendages is indicated. 2. Cases in which exudate indicates drainage without the removal of any organ. 3. Small fibromyomata. As to the technique of the operation, the author wishes to emphasize the value of morcellation, the Mikulicz drain, and ligatures instead of clamps.

The Surgical Cure of Uterine Prolapse.—O. Morisani [31] thus concludes an article upon the subject: 1. The surgical treatment of cases of prolapse is absolutely essential, medical measures being inadequate to their cure. 2. Prolapse of the vaginal walls may be remedied by a plastic operation. For cystocele the operation indicated is anterior colporrhaphy in connection with restoration of the perineum; the Hegar-Schröder method should be given the preference. In posterior colpocele Hegar's process is indicated, but may be slightly modified to suit certain cases. 3. In cases of utero-vaginal prolapse we may adopt (*a*) infra- or supravaginal amputation of the cervix, when there is hypertrophic lengthening; (*b*) Fabbri's recto-vaginal fixation when the posterior vaginal wall is detached from the rectum and there is excessive downward displacement of the cul-de-sac of Douglas; (*c*) Alexander's operation, or, better yet, abdominal hysteropexy, if there is relaxation of the suspensory ligaments; (*d*) to obtain durable results with all of these operations a plastic operation of the vagina and perineum should be performed in conjunction with them. 4. Median colporrhaphy with a plastic operation of the perineum may be performed in women who have passed the menopause. 5. Vaginal hysterectomy should be reserved for cases where the indications are beyond question. These indications are: (*a*) senile atrophy of the vaginal mucosa and the pelvic plane, or else excessive hypertrophy—in either of these conditions plastic operations are valueless; (*b*) excessive relaxation of the ligaments of the uterus when methods adopted to fix the organ in place have been unsuccessful; (*c*) atrophy of the uterus, which has fallen completely outside of the vulva, surrounded by an inverted, flaccid, and relaxed mucosa, or else hypertrophy of the organ; (*d*) complicating fibroma, carcinoma, or more or less grave disease of the appendages; (*e*) non-reducibility of the prolapsus either because of its hypertrophy or because of pelvic adhesions.

Total Vaginal Extirpation of the Uterus and Ovaries for Carcinoma of the Cervix.—Rosario Vitanza [32] lays much stress

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upon the operatory technique of vaginal hysterectomy. He describes a special modification introduced by him into the operation. It consists: (1) in the preventive removal of the neoplasm; (2) in forcipressure at the base of the broad ligaments through openings in the anterior and posterior fornices, leaving the forceps in place; (3) in the ligature from above downward of the uterine appendages, which, after being tied with threads which are cut short, are allowed to return to their place in the pelvis. He believes this method to be of easy application and to be quite free from danger. Three cases of hysterectomy done by him in this manner were followed by rapid recovery. He reports 32 cases of carcinoma limited to the cervix, the cancer returning in only 6 of them in from five months to one year. It had not returned in 10 cases in from two to three years, in 7 in from three to four years, in 5 in from four to five years, in 5 in from eight to nine years. To these he adds another case of supravaginal amputation of the cervix performed by Dr. Di Bella six years ago. The patient goes to his clinic for another reason, but not for the return of the neoplasm. The author reports 4 more cases of carcinoma of the cervix in gravid uteri in which he performed infravaginal amputation of the uterus, and not only was pregnancy not interfered with, but up to the present time (a year later) there has been no return of the cancer. In view of the numerous cures obtained by partial removal of the uterus, especially in cases of pregnancy, the author queries whether, in cancer limited to the cervix, total removal should not be replaced by high amputation of the cervix.

Uterine Myomata.—In discussing myomata in relation to menstruation and pregnancy, J. B. Sutton[11] states that the menstrual epoch may be divided into three periods, thus: 1. From 15 to 25, in which, assuming the environments to be favorable, a woman is infinitely more liable to conceive than to grow a myoma in the uterus. 2. From 25 to 35 her liability to pregnancy is greater than in the preceding period, but her liability to myoma is also greater. 3. From 35 to 45 the liability to conception is greatly diminished, but that to myomata is greatly increased. Myomata not only arise during the menstrual period, but prolong it sometimes as much as ten years. When a woman with a myomatous uterus conceives, it is certain that her life is in jeopardy, not only so long as the fetus remains within it, but also when it is expelled, whether this occur prematurely or at the full time. The presence of the tumor not only leads to impaction, but tends to produce abortion; when this occurs the mother may die from hemorrhage. A submucous myoma may become septic and slough. A subserous myoma may become edematous, and when the uterus empties itself the myoma may inflame and lead to peritonitis or the formation of dangerous adhesions. A cervix myoma offers mechanical obstruction to the transit of the fetus; a submucous myoma may be driven out in front of the presenting part; more frequently it is extruded subsequent to the delivery

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of the child. The complete extrusion of a myoma in this way usually requires from four to six weeks; the peril to life is so great that the majority of women who fall into such straits die unless the aid of surgery be enlisted.

Sutton [illegible] states that the most effectual treatment is thorough removal of the tumor, whenever this is practicable, at the earliest possible moment. The operations he arranges as follows:

I. VAGINAL METHODS. 1. *Vaginal Myomectomy.*—This signifies the removal of a stalked myoma (polypus). 2. *Vaginal Enucleation.*—This relates to the removal of a sessile submucous myoma. 3. *Vaginal Hysterectomy.*—This term covers complete removal of the uterus, with or without one or both ovaries and Fallopian tubes.

II. ABDOMINAL METHODS. 1. *Abdominal Myomectomy.*—This term signifies the removal of one or more pedunculated subserous myomata, preserving the uterus, the ovaries, and the Fallopian tubes. 2. *Abdominal Enucleation.*—By this operation a sessile subserous, submucous, or intramural myoma is shelled out of its capsule; the uterus and, as a rule, the ovaries with the Fallopian tubes are preserved. 3. *Supravaginal Hysterectomy.*—By this method the uterus with a portion of the cervix is removed. Sometimes one and occasionally both ovaries and tubes are preserved. In these circumstances the operation may be termed "*conservative supravaginal hysterectomy.*" 4. *Panhysterectomy.*—This signifies complete removal of the uterus and its neck; occasionally one or both ovaries and the Fallopian tubes are preserved. 5. *Oöphorectomy.*—In this procedure both ovaries and tubes are completely removed in order to arrest menstruation.

The following instruments are necessary for the vaginal methods: The crutch for securing the patient in the lithotomy position, a duck-bill speculum, a uterine sound, a vesical sound, volsellæ, dilators, sponge holders, uterine probes, scissors curved and straight, needles in handles, speculum forceps, hemostatic forceps, retractors.

Vaginal Myomectomy and Enucleation.—The preliminary preparation of the patient consists of thorough evacuation of the bowels and careful antiseptic douching of the vagina during two or three days preceding the operation. The patient is anesthetized and secured in the lithotomy position and placed in a good light. The surface is exposed by means of a duck-bill speculum and douched. Next determine whether you are dealing with a tumor or a partially inverted fundus. In case of polypus the sound can be introduced into the uterus two and a half inches. When there is an inversion the sound will not pass in to its full length. A small cervix myoma may arrest the sound at the top of a dilated cervix and yet there may be a whole uterine cavity above it.

1. A pedunculated myoma protrudes from the os uteri.—The operator determines the position of the pedicle and is often able

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to detach the tumor by twisting it. If the stalk is too thick to allow this it may be cut through with scissors, or transfixed with silk, ligatured, and then be bloodlessly removed. If no other tumors exist the parts are irrigated and dried; a tampon of cotton wool or gauze impregnated with an antiseptic may be introduced into the vagina. This tampon is removed in twelve hours and the vagina douched twice daily.

2. A sessile myoma protrudes at the os uteri.—When the tumor does not exceed the dimensions of a bantam's egg the operator dilates the cervical canal, then splits the mucous membrane and capsule, and by a finger or raspatory shells the tumor out of its capsule as far as its base. The tumor is then pulled or twisted cautiously out of its bed.

3. Sessile and pedunculated myomata with an undilated cervical canal.—These may be treated in many cases as in 2. When the tumor is a very large pedunculated myoma it may be easily detached by twisting, but there may be difficulty in extracting it. In the case of a sessile tumor there will be difficulty in enucleating as well as extracting it. When the myoma is too large to be extracted through the cervical canal without undue force, Sutton splits the cervix bilaterally.

Vaginal Hysterectomy.—The preliminary steps are the same as described above. The instruments are the same as enumerated before, with the addition of strong clip forceps. After the patient has been anesthetized and secured in the lithotomy position, the hair shaved from the pubes and labia, and the external parts washed with soap and water and douched with a solution of perchloride of mercury 1:1000, the operator proceeds as follows:

Stage 1.—This consists in seizing the cervix with a stout volsella, and then by means of a scalpel the mucous membrane on its anterior aspect is transversely divided at a point sufficiently low to avoid injury to the bladder. The bladder is then cautiously separated from the cervix with the forefinger, assisted, if necessary, with the handle of the scalpel. It is an advantage to divide the peritoneum forming the lower limit of the utero-vesical pouch, and gain access to the peritoneal cavity. Throughout this stage the operator constantly informs himself of the exact position of the bladder by manipulating the sound.

Stage 2.—The incision in the mucous membrane is now carried round each side of the uterus, and by means of scissors the recto-vaginal pouch is opened and a sponge is introduced to protect as well as to restrain the bowels and omentum.

Stage 3.—The broad ligaments are dealt with in the following manner: A curved needle in handle armed with strong silk is made to transfix the connective-tissue tract close by the side of the cervix, in order to avoid the ureter. The object of this ligature is to secure the uterine artery near the spot where it turns on to the side of the uterus. The ligature is firmly knotted. When the artery is seen it is picked up with forceps and deliberately tied. When the artery has been secured

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on each side, and the tissue between the ligature and the uterus divided with scissors, the organ can now, as a rule, be drawn low down into the vagina and the upper segments of the broad ligament transfixed with double silk ligatures. These embrace the Fallopian tubes with the ligament of the ovary, the ovarian artery and veins, and the round ligament of the uterus. The tissues between the uterus and the ligatures are divided, and the uterus is removed.

The vagina is then irrigated with warm water, the sponge removed, and if the cut edge of the vaginal mucous membrane bleeds—a frequent condition—it is useful to secure it with a continuous suture of thin silk, or arrest the bleeding with forceps and leave them on for twelve hours. The ligatures used to secure the broad ligaments are left long, those of each side are knotted together, and a strip of gauze is introduced into the vagina to serve as a drain.

The above details are those which can be carried out when the vagina is capacious and the uterus small. When the uterus is large and the vagina small, the method of morcellement may have to be adopted and the uterus removed piece by piece. The chief of the operative dangers are those to the bladder, ureters, and bowels, and hemorrhage. If the bleeding has been profuse the patient should be transfused.

M. C. McGannon[11] believes myomectomy is the ideal operation for the removal of fibroids, whether pedunculated, sessile, or intramural. He is also of the opinion that this operation is the one that will be chiefly practised in the near future.

A. L. Smith[12] treated two cases of fibroid tumor of the uterus by electricity with good results. One case was treated for seven weeks, with the result that at the end of that time a fibroid was expelled from the uterus. The tumor had to be severed from the uterine wall with a wire. The second case was treated for three days, when the patient, feeling so much better, went home. On the way home pains of a tearing character came on. These lasted about half an hour. At the end of this time the tumor came away entire.

Vaginal Hysterectomy in Cases of Fibromyomata of the Uterus.—G. Inverardi[1] urges an early operation in these cases. It is his belief that many patients die even after an operation conducted rapidly and skilfully, simply because they have waited until the favorable time for operating was past. The often delusive hope of a disappearance of the tumor with the appearance of the menopause is also a frequent cause of mortality in these cases. Moreover, myomata which could readily have been removed in the beginning are often subjected to treatment which by its irritation ends in the production of malignant growths The presence of tumors not only exposes the patient to the dangers of suppuration, ichorization, putrefaction, the various forms of degeneration, complications upon the part of the appendages and the peritoneum, grave anemia caused by hemorrhages and by pain (uterine colic, dyschyzia, dyspareunia, dysuria, etc.), but it also provokes brown

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atrophy and fatty degeneration of the heart. This is especially the case with myomata of rapid development, and the author has also found the condition in chronic and grave inflammatory lesions of the uterine appendages. The cardiac condition is the more to be feared that it is not easily recognizable before the operation and may coexist with a very good general condition. After the operation the patients develop an incurable tachycardia which may rapidly become fatal. The author believes that heart symptoms are more frequently found after abdominal than after vaginal hysterectomies. This fact in itself constitutes an important reason why the tumors should be operated upon before they have attained proportions which would forbid their being extracted through the vagina, for the cardiac disease may be determined not only by the great amount of traumatism to which the peritoneum is subjected during an abdominal operation, but also by the continuous and prolonged effect of large myomata upon the myocardium. As to the benignity of tumors, it is the author's opinion that they are benign only when they have been removed from the body. Their small size should not form any contraindication to operation, for a fibromyoma grows by intrinsic multiplication of its elements, and while in the beginning this growth is slow and regular, it may very suddenly assume proportions too large to allow of easy removal. As to the excessive faith in the curative powers of the menopause, Inverardi, with all due respect to the opposite opinion held by Spencer Wells, says that dispassionate and accurate clinical observations have convinced him that as a rule the menopause is greatly retarded, and that precisely at this epoch the myomata become the occasion of the gravest accidents. At this stage we most frequently observe the various forms of degeneration of the myomata, including malignancy, which always complicate the operation and endanger the results. At the time of life of the menopause, moreover, the systemic resistant powers are lessened. In conclusion, the cases are not rare in which myomata begin to develop or to cause injury after the menopause. Out of the 36 cases operated upon and reported by the author in this article, 19 were between the ages of 40 and 50 years. At an earlier age myomata may complicate pregnancy. On the one hand, the neoplasm will in such a case increase rapidly in size and become readily subject to the various degenerations, to necrosis, contusions, and inflammations, and, on the other, will cause grave and even fatal obstetrical complications. For all these reasons an early diagnosis should be made of these new growths, under anesthesia, and by the introduction of a sound, or, in doubtful cases, by curetting after dilatation of the cervix. Of the 36 cases operated upon by the author (with only 1 fatal case, in which there was suppuration and ichorization of the tumors previous to surgical interference, with an advanced state of anemia), in 3 the size of the tumor was equal to that of a uterus at a month and a half of pregnancy. in 4 to one of two months, in 2 to two and a half months, in 10 to three months, in 5 to four months, in 1 to four and a half

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months, in 4 to five months, in 2 to six months, and in 5 cases the size was not recorded, but the tumors were not large. In 32 of the cases there was no rise of temperature after the operation. In 3 a slight rise was easily overcome by appropriate treatment.

Special Operative Technique for Abdominal Hysteropexy.—Cesare Micheli [15] says that many authorities consider anterior abdominal hysteropexy as an operation against Nature, because they believe that by its use the uterus is fixed in an abnormal position and prevented from performing its natural function. The author, however, maintains that it is all a matter of technique, the essential point being to so perform the operation as to leave the uterus as free and movable as possible. The fundus, the lateral margins of the uterus, and that portion known as the supravaginal portion should never be involved, the only permissible point for fixation being the median region of the anterior walls of the uterus.

Vaginal Hysterectomy.—Mainzer [16] reports 200 operations from Landau's clinic in which the uterus and adnexa were removed per vaginam, the indications being chronic inflammatory conditions of the adnexa. The mortality of the operations was 4 per cent. There occurred no injuries to the ureters and bladder. One of the great advantages of the vaginal method is the absolute absence of danger from acute intestinal obstruction. This rather frequent complication of the abdominal operation did not occur in a single case. The radical operation—the removal of both the uterus and adnexa—lessens the disagreeable disturbances following the extirpation of the ovaries and tubes only. Mainzer reports that in 25 per cent the premature menopause was followed by a train of nervous symptoms, which, however, were favorably influenced through the administration of ovarian extract. The age of the patient bears no relation to the presence or absence of these symptoms. The *libido sexualis* and *voluptas* is rarely altered, and psychical disturbances were never observed. Mainzer states that in cases where only the uterus requires removal it is wise to leave the adnexa, but if the adnexa are diseased and the uterus is healthy both the uterus and adnexa should be removed.

Large Ovarian Dermoid.—Dermoid tumors are seldom seen larger than an adult head. Their slow growth renders them liable to infection, inflammation, and adhesions before they have attained a large size, and so leads to their detection and removal. Byford [17] removed successfully one weighing seventy pounds from a patient aged 52. Its existence had been known for twenty-five years, but as the patient believed in Christian science she refused operation until almost *in extremis*. Convalescence was critical for twenty-four hours, but after that uneventful.

Bäcker [18] reports 2 cases representing rather rare forms of dermoid tumors. The first case concerns a IIpara, 47 years old, who was last confined two years ago. She suffered for twenty years from incontinence of urine, and the physician who sent her to the clinic made a diagnosis of calculus ten

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years ago. Upon making a digital examination a stone about the size of a goose egg was found to occupy the posterior wall of the bladder. The stone was rather soft and could be removed in portions. It was found that the stone represented incrustations upon a polypoid growth occupying the posterior wall of the bladder. After dilatation of the urethra the tumor was pulled down and extirpated. The tumor, the size of a pigeon's egg, solid in structure, showed upon its surface two teeth and a long strand of hair. In its interior centres of ossification were seen. This tumor represents one of the rare forms of primary dermoid of the bladder. The patient was in a very deplorable condition prior to the operation, and died eight days later from marasmus. The subsequent postmortem showed that the right ovary, normal in size, was attached to that portion of the bladder from which the tumor took its origin. [Thus it is probable that the dermoid was, after all, not a primary dermoid of the bladder, but of ovarian origin.] The second case was a primipara 27 years old, who ten months ago had a normal confinement and puerperium. Later she suffered for some weeks from peritonitis. During the last three months she had felt quite well. For four months she had noticed a gradual increase of the abdomen. Examination showed that a tumor, probably growing from the ovary, extended to about three fingers below the umbilicus. Laparatomy was performed. The abdomen contained a cyst with numerous peritoneal adhesions. These adhesions were left undisturbed. The thick wall of the tumor was incised, after which about two quarts of a dark-brown fluid were removed. This cyst contained another cyst, which harbored an embryo-like formation. Besides this its interior contained strands of hair and cartilaginous structures. Thus the tumor was an ovarian cyst containing a dermoid cyst in its interior.

Tuberculosis of the Fallopian Tubes and Ovaries.—For the last two years numerous reports of tuberculosis of the female pelvic organs can be found in the current literature. To these Frank[39] adds a new case of tuberculosis of the tubes and ovaries. A woman 34 years old came under observation with a thickened, retroflexed uterus, enlargement and sensitiveness of both tubes and ovaries. She complained of metrorrhagia and pain. Laparatomy, ovario-salpingotomia duplex, ventrofixation. After the operation temporary improvement followed by recurrence of pains and abdominal dulness. *Exitus lethalis.* Postmortem showed general tuberculosis of the peritoneum.

Dysmenorrhea.—The preventive treatment, as described by S. Keith,[40] consists in keeping the girl warm and in attending to her general health. When a delicate, chilly girl is developing into womanhood, a winter passed in a warm climate may make all the difference whether she is to be a strong or delicate woman, and at the same time dysmenorrhea, if present, will usually be cured. To most this form of treatment is not accessible, and we must rely on the avoidance of too many lessons, of

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too long practising in a draughty schoolroom, and in the indulgence of plenty of out-door exercise in the fresh air, in going early to bed and arising late, in keeping warm day and night, and in the judicious use of the morning bath. As soon as there is the slightest appearance of the "period" the girl must be kept rigidly to bed and not allowed to get up until the pain is entirely gone. A large poultice should be kept over the abdomen as long as there is any pain. A brisk saline draught at the commencement, or, if possible, twelve hours before, and then a mild diaphoretic, with a small dose of bromide of sodium or potassium if the patient is strong, or, if weak, some aromatic spirits of ammonia are best. In the local treatment of this trouble Keith believes that the stem pessary has had its day and is unscientific. Slight dilatation is suitable in the case of a married woman when the flexion is not great; in such cases it is used in the hope that by distension of the canal impregnation may take place. The advocates of the rapid method claim that it is suitable in all cases. Simpson's lateral and Sims' posterior division of the cervix, as compared with dilatation, do no more good and they do no more harm. The Dudley modification of Sims' operation aims to the straightening of the uterine canal and the healing of the cut surfaces by first intention. All the cases Keith has operated on by the Dudley operation have been cured or greatly relieved.

Anatomical Studies of Hemorrhoids.—Rheinbach[11] has made a careful investigation of the pathological anatomy of hemorrhoids. His most important conclusions are as follows: Hemorrhoids are not, as is commonly supposed, a varicose condition of the hemorrhoidal veins, but they are real tumors of a benign character. These tumors consist in the main of blood vessels; thus they may be classed as angiomata. The formation of new blood vessels is accompanied by an increased growth of new connective tissue. The tumors are at times complicated by venous congestion and inflammation, generally of a mild character and confined to the immediate neighborhood of the skin and mucous membranes. The blood vessels are rarely affected.

The Diagnostic Importance of Abdominal Reflexes in Gynecology.—Bodon[12] has investigated the abdominal reflexes and their diagnostic importance in about 300 women and found their observation serviceable in differentiating between pelveo-cellulitis and pelveo-peritonitis. In case a tumor of doubtful character is found to occupy one-half of the pelvis, and the abdominal reflexes are equally strong upon both sides, one may be certain that the seat of the tumor is the parametrium or the pelvic connective tissue. The pelvic peritoneum is involved if the reflexes are lessened upon the side of the disease. Pelveo cellulitis does not diminish the abdominal reflexes; pelveo-peritonitis, however, lessens or abolishes them entirely. In two cases of general peritonitis Bodon found the abdominal reflexes absent upon both sides.

Foreign Body in Bladder.—E. T. Collins[13] removed from

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the bladder of a weak-minded woman a wooden penholder about three inches in length. The central portion of the penholder was encrusted with a calcareous deposit.

Hysterectomy and Hystero-myomectomy.—H. A. Kelly[44] believes that one or both of the ovaries should be left in place, if possible, when the uterus is removed. He states that there is a growing conviction that the ovary belongs to the same group of organs as the thyroid, thymus, and perineal glands, and that, in addition to its function of ovulation, it secretes a substance which is absorbed and consumed in the animal economy and which is necessary to it in retaining its physiological balance. He does not carry his conservatism so far as to add considerably to the length of the operation by attempting to retain inflamed or diseased tubes and ovaries, which can be much more quickly and safely removed in conjunction with the uterus.

Ulcers of the Anus.—T. Bryant,[45] when examining a patient to determine the existence of an ulcer, places the patient on the side, flexes the thighs, and separates the buttocks; with the thumb and index finger of one hand laterally draws aside the two sides of the anus, and with the finger or thumb of the other hand raises or pulls down the characteristic fold of skin or papillæ beneath which the presence of an ulcer is suspected. If it be present the extremity of the ulcer or the whole ulcer will at once be seen, even if it exists alone or is found to coexist with external or internal piles, or even with a polypus; for it cannot be too well recognized that cases of piles, prolapse of the rectum, and polypi, when the seat of severe pain, are mostly so from their being complicated with the painful ulcer. Whenever a patient complains of sudden accession of anal pain in the act of defecation, and the persistence of a burning, cutting pain for a few or many minutes, or even for hours after the act; whenever a patient who has been known to have piles or prolapse suddenly becomes the victim of this intense local pain and, as a consequence, seeks for relief, the presence of this trouble should be suspected, and no treatment ought to be suggested before a careful local examination has been carried out. When the ulcer is once recognized its cure is soon brought about, if it be uncomplicated, by a forcible dilatation of the anus followed by a well-made incision through the whole length of the centre of the ulcer, together with half an inch of the healthy tissue above and below its border, the incision being made to penetrate only through some of the superficial fibres of the sphincter muscle. In slighter cases the forcible dilatation of the sphincter will suffice by itself. If the ulcer is of long standing a deeper incision may be necessary.

The Inguinal Operation for Femoral Hernia.—Edebohls[46] believes that the classical operation from below Poupart's ligament should be the operation of choice for femoral hernia, the inguinal operation being performed only upon special indications. These are (1) the coexistence of complete or incomplete inguinal hernia with a femoral hernia of the same side; (2) in women, the coexistence with femoral hernia

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of a retrodisplacement of the uterus which can be corrected by shortening the round ligaments.

When the inguinal operation for femoral hernia is indicated, the best method of performing it is to open the anterior wall of the inguinal canal from external to internal ring, hook the spermatic cord or round ligament upward out of the way, and cut through the posterior wall of the inguinal canal. After reduction of the hernia, liberation and high ligation of the sac, and clearing of the femoral canal, the crural ring, if small, should be closed from above by suturing Poupart's ligament to the periosteum of the horizontal ramus of the pubis. Should the hernial aperture be large a fibro-periosteal flap should be formed and used. in the manner described, to close the crural ring. In either case the irritation of the periosteum produced tends to new formation, in and about the crural ring, of osseous tissue which will constitute an efficient barrier, efficiently placed, against the redescent of a hernia. The saphenous opening may then be closed by sewing the falciform process to the pubic portion of the fascia lata, although this procedure is of secondary importance. The posterior wall of the inguinal canal is reunited by suture, and the inguinal canal reconstructed after the manner of Bassini's operation for the radical cure of inguinal hernia. The chief advantages of the inguinal operation for femoral hernia are the possibility and easy performance of high ligation of the hernial sac, and of high and effective closure of the crural ring.

Topical Applications in Gynecology.—The principal procedures in local gynecological treatment are the hot-water vaginal douche, tamponade, and intrauterine applications. E. C. Dudley " describes them as follows:

THE HOT-WATER VAGINAL DOUCHE.—The choice of the syringe, frequency of the douche, time and length of each application, temperature of water, proper use of bed pan, position of patient, and persistence in long continuance of treatment are all essential factors.

The good results of the douche will be realized only by the strict observance of the following rules in its application, as laid down by Emmet: 1. It should invariably be given with the patient lying on the back, with the shoulders low, the knees drawn up, and the hips elevated on a bed-pan or rubber sheet, so that the outlet of the vagina may be above every other part of it. Then the vagina will be kept continually overflowing while the douche is given. 2. It should be given at least twice every day—morning and evening—and generally the length of each application should not be less than twenty minutes. 3. The temperature should be as high as the patient can endure without distress. It may be increased from day to day from 100° or 105° to 115° or 120° F. 4. Its use, in the majority of cases, should be continued for weeks at least, and sometimes for months. Perseverance is of prime importance.

The douche acts as a vasomotor stimulant and as a cleansing agent.

(*a*) *Vasomotor Stimulant.*—Emmet attributes the good

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effects of the douche to the stimulating influence of the hot water on the vasomotor nerves, whereby the dilated, congested vessels are made to contract, the congestion lessened, absorption of morbid products hastened, and local nutrition improved. The effect is the same as that of massage after the Brandt method.

(*b*) *Cleansing Agent.*—In pelvic inflammation the vagina is a passage-way, and to some extent a receptacle, for pathological secretions which flow into it from the uterus, Fallopian tubes, pelvic abscesses, vaginal mucous membrane, and even the vulva. Unless kept clean the vagina may become an incubator and a distributing point for bacteria. The value of the douche, therefore, as a means of asepsis, is self-evident. When local disinfection is required the douche may have in solution some antiseptic substance, such as lysol, carbolic acid, corrosive sublimate, boric acid, salicylic acid, or peroxide of hydrogen.

The indications for the douche are chiefly in the treatment of chronic pelvic inflammations. The power of heat to stimulate and contract the blood vessels makes the douche useful in uterine hemorrhage. The disposition to extend its use to the routine treatment of a wider range of pelvic disorders should be discouraged.

There are constantly present in the normal vagina great numbers of lactic acid bacteria (Döderlein), whose function is to render the vaginal secretion acid, and therefore to make it an unfit culture ground for about ninety per cent of all pathogenic bacteria. The flushing out of these normal germs and their acid secretion opens the way for infection higher in the pelvis. For this reason the indiscriminate routine use of the douche in the normal vagina is of questionable propriety.

TAMPONADE.—The principal indications for tamponade are inflammation and hemorrhage.

(*a*) *Inflammation.*—Tamponade in the treatment of inflammation is designed as a means of pressure, as a vehicle for the application of medicinal substances, and for drainage. The pressure effect of the tampon is chiefly useful in the treatment of displacements, especially those due to inflammatory causes. This indication is better fulfilled by Brandt's method of massage. As a vehicle for the application of medicaments the tampon has become a routine factor in gynecology. It is often used as a carrier of glycerin, to cause a watery discharge from the genital tract and thereby to deplete the vessels and overcome congestion. How far the good results attributed to the tamponade are due to the curative forces of Nature or the associated systemic treatment, is difficult to say. A tampon left in for more than twenty-four hours becomes offensive and a possible hot-bed of infection. It should therefore be removed on the day following its application. Its common, indiscriminate routine use should be discouraged. Its therapeutic value has been much over-estimated. If used at all, it should be applied daily. One or two applications a week have little value, except possibly that of suggestion. Drainage of the

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endometrium for endometritis by means of the intrauterine tampon will be mentioned later.

(*b*) *Hemorrhage.*—Vaginal hemorrhage may often be controlled by a tight vaginal tampon. It is, however, better to find and secure the bleeding point. Uterine hemorrhage may demand immediate control. The vaginal tampon which is commonly employed is inefficient and cumbersome. In bad cases it usually fails, and the distension of the vagina by a large tampon interferes with the functions of the bladder and rectum and is the cause of great mechanical discomfort. Intrauterine tamponade is a more practical, comfortable, and effective treatment for uterine hemorrhage. It should be in the form of a continuous strip of aseptic or antiseptic gauze about two inches wide. The cervix having been exposed by a Sims speculum and steadied by a volsella forceps, the strip is introduced by a slender dressing forceps or sound. The gauze should be removed daily, as secretions absorbed by the tampon decompose rapidly and become a powerful source of infection.

If elastic pressure is required, fine lamb's wool is superior to absorbent cotton. For other purposes the continuous strip of aseptic gauze is preferable.

INTRAUTERINE APPLICATIONS.—The permanent arrest of a long-standing uterine discharge by topical applications to the endometrium is seldom accomplished, because the treatment as ordinarily applied does not reach the disease, and because it is not only not indicated, but is injurious in the vast majority of cases for which it is used. The prerequisites to safe and efficient intrauterine applications are a proper selection of cases and a clear pathological indication and definite appreciation of what the treatment is to accomplish.

The proper selection of cases is arrived at by exclusion. This will lead to the exclusion of at least two large classes of cases: (*a*) Cases in which the predominant element is local infection, in which there is a distinct purulent discharge from the uterus, in which the endometrium is an abscess cavity, and the uterine mucosa and sometimes the myometrium the wall of this abscess cavity. If there is a systemic element it is relatively insignificant. In such cases direct treatment to the diseased structures is clearly indicated. (*b*) In the second class of cases the predominant etiological factor is systemic; there may be some degree of infection, but this is not the essential factor and should disappear with the improvement of the systemic condition. The treatment of such cases would be clearly not local but systemic.

For the so-called infectious cases the value of topical treatment has until recently been much over-estimated and its dangers under-estimated. The milder intrauterine treatment as ordinarily practised is long, tedious, and useless. Local treatment, mild or severe, if frequently repeated with indifferent aseptic care, often sets up new infection or carries the old infection to deeper structures. This may dangerously involve the parametric lymphatics and veins, the myometrium, Fallopian tubes, cellular tissue, peritoneum, and ovaries.

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Intrauterine applications are usually effective in proportion to their energy. Only those which have the power to destroy the diseased structure are capable of arresting the discharge. In doing this, however, they may destroy the endometrium, injure the myometrium, and reduce the uterus to a cirrhotic-like, cicatricial condition. Sterility and permanent irritability of all the pelvic organs are the natural results. Numerous operations have been devised, with but little success, to reopen the uterine canal contracted by the prolonged application of such agents.

Contrast this condition with that which follows an aseptic curettage. In the latter condition the healthy abraded surfaces are all ready to reproduce a new endometrium. The routine application of strong caustics to the endometrium is prohibited.

A principal mode of action of electricity is by cauterization, although it is said to have a deeper effect on the blood vessels. Its continued use may arrest the discharge, but it is open to the same objection as other caustics. Its chief value is in the soft, flabby, hemorrhagic uterus, especially in the endometrium associated with myoma. The effects of electricity are not limited to the diseased tissue, but may include healthy structures. Its immediate dangers are greater than those of aseptic curettage. Generally speaking, the method is not approved.

Intrauterine gauze tamponade has been extensively used for dilatation and drainage in non-operative cases. Increasing quantities of a narrow strip of aseptic gauze are packed into the uterus at successive treatments until the endometrium has become dilated to a diameter of one-third or half an inch. Such dilatation is said to permit easy and thorough intrauterine treatment and drainage, especially capillary, when the gauze is in place. The method in my own hands has been occasionally successful, but great care is necessary lest the gauze, instead of carrying out septic material, carry it in.

Innumerable drugs and chemicals have been lauded for intrauterine medication. Carbolic acid and iodine probably meet the requirements in glandular endometritis so far as topical treatment can meet them. In interstitial endometritis ichthyol, although useful, has not entirely fulfilled its early promise.

Curettage.—When the disease is distinctly infectious and chronic, topical and systemic treatment are both inadequate, although both may properly supplement surgical measures. The diseased portion of the endometrium must be removed by the sharp curette. If this operation is thoroughly performed, so as to remove the most infectious portion of the endometrium, it is relatively free from dangers, offers a reasonable prospective relief, and the curetted mucosa is rapidly reproduced.

The treatment of infectious endometritis, even with the curette, is not uniformly successful. Dilated and obstructed blood vessels cannot always be restored to their proper calibre; disorganized lymphatics, nerves, and glands cannot always

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resume their normal function, and regeneration of lost structures is not always possible. In the glandular forms of endometritis the sharp curette offers both a symptomatic and histological cure, but when the disease has progressed to the atrophic stage and the endometrium is physiologically destroyed, only a degree of symptomatic cure is possible. When the endometritis is complicated with extensive chronic and obstinate pelvic infection, the uterine discharge will persist regardless of curettage or any other intrauterine treatment, and hysterectomy may be the only way of relief.

The danger and uselessness of topical treatment for the strongly infectious cases is so manifest that few scientific physicians to-day place great value on its use. The situation is, however, quite different in the second class of cases, in which certain systemic conditions are not only the predisposing but the essential etiological factors. These conditions find their chief expression in stagnation of the general circulation; the stagnation is usually associated with disorders of the heart, lungs, liver, and kidneys, and is often found with the uric acid and other diatheses, such as anemia, leukemia, chlorosis, diabetes, gout, and rheumatism. The discharge may come also as a sequel of some acute infectious disease, such as enteric fever, scarlatina, or diphtheria. Not only the endometrium but the mucosa of other organs shares in the general condition, and becomes less resistant and consequently more liable to infection.

The uterine catarrh is sometimes apparently a vicarious act. I have frequently noticed the cessation or material diminution of a fetid uterine discharge upon re-establishing of the normal functions of the bowels and kidney. Inconsistent as the statement may appear, topical treatment in this class of cases, which clearly do not call for topical treatment at all, has commonly been followed by the best results.

When diligent use is made of topical applications and a cure is effected it is quite natural to give the credit to that treatment, when in reality the cathartic pill perchance may deserve it. Or, in other words, a case of this class may recover in consequence of the proper systemic treatment or of the curative forces of Nature, in spite of the associated topical treatment which it did not need and which may even have done harm.

There is a common impression that severe infectious cases should be treated surgically, and that mild non-infectious or slightly infectious cases should be treated by topical applications. I would make exception to the latter part of this statement and say that those cases that are not surgical are generally medical. The endometrium has suffered a vast amount of sometimes mild, generally useless, oftentimes destructive topical treatment. The uterus has endured an immense amount of abuse, and the absurdity of topical treatment to the endometrium in such cases is evident when we consider that the uterine catarrh is only one of many local evidences of a general condi-

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tion. A large proportion of the cases belong rather to internal medicine than to gynecology.

The systemic therapeutics which apply to the various conditions under discussion include general and sexual hygiene, dress, dietetics, care during menstruation, tonics, regulation of the bowels, bathing, and, above all, exercise. If we except the clearly infectious cases, some simple treatment, such as one-twentieth of a grain of calomel three times a day with enough mild saline to keep the bowels regular, supplemented by three or four miles of daily walking, will cure the vast majority of cases of endometritis.

If the above premises are true, it follows that a very large proportion of the women who formerly crowded the reception rooms of the gynecologists for intrauterine and other local treatment should be treated by medical or surgical means, or by both combined. If they do not present well-defined indications for surgical treatment they should generally be referred to the field of internal medicine. The legitimate field for routine topical applications in gynecology is limited.

Dudley does not deliberately purpose to condemn unreservedly the conventional topical treatment. He has in years gone by used the vaginal douche, the swabbing of the uterus with medicated cotton, the injection of astringents, the vaginal and intrauterine applications of dry powders, intrauterine pencils of various stimulating and caustic substances, wool-glycerin tamponade in the vagina, electricity, and intrauterine gauze tamponade. The diligent and patient use of such measures was followed by much disappointment and some positive harm.

Topical treatment should seldom be long continued. It has a more legitimate place as a supplement than as a substitute for systematic and operative treatment. A reproach will be lifted from the medical profession when finally its indiscriminate and frequent use shall have been relegated to the dark ages of gynecology.

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DISEASES OF CHILDREN.

Abscesses, Multiple, of the Skin.—Jules Renault[1] devotes a long article to the consideration of this affection in children. In newly-born infants the first subcutaneous abscesses often appear around a vesicular erythema of the buttocks, which is due to diarrhea or to gastro-intestinal disorders. During the two first years of life the starting point of the abscess is often a lesion of eczema, of seborrheal eczema irritated by scratching, of the so-called diathetic prurigo, and of the prurigo of children suffering from gastro-intestinal troubles. Scabies and fleas may lead to abscesses; these are also found coexistent with impetigo and ecthyma, or following pemphigus, varicella, scarlatina, and measles. In some cases the abscesses would appear to be primary; it will then usually be found that the child is debilitated or cachectic, unable to resist the invasion of microbes. In tuberculous children we may find cold tuberculous abscesses, acute non-tuberculous abscesses, and abscesses due to mixed infection. In syphilis there are gummata which are sterile so far as the tubercle bacilli are concerned or the ordinary pyogenous microbes, but which are cured by specific treatment. There are also slowly formed torpid gummatous abscesses and acute subcutaneous abscesses. Rachitis is a predisposing cause of abscesses. Chronic gastro-enteritis is one of the most common causes. The author gives the pathogenesis and the symptomatology of abscesses, and discusses the various forms, which he classifies clinically as follows:

Pyohemic { consecutive to deep suppuration.
" " cutaneous suppuration.

Phlegmonous { confluent { primarily } { with or without several successive attacks.
secondarily to { discrete form / torpid form.. } }
discrete }

Torpid { confluent / discrete . } { with or without consecutive attacks.

The complications may be lymphangitis, suppurative adenitis, gangrene, atony of the ulcerated parts, detachment, purulent fusion. Broncho-pneumonia, enteritis, septicemia, pyohemia, and gastro-enteritis are more serious complications. The diagnosis is not difficult, except in the differential diagnosis of simple from tuberculous abscess or softened syphilitic gummata. In many cases nothing but a bacteriological examination will settle the question in the cases of the first, while the other signs of hereditary syphilis, which are always present, a bacteriological examination of the pus, and the effect of specific treatment will confirm the diagnosis of syphilitic gummata.

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Prognosis must be based upon individual conditions, the age of the child, its previous condition, the form of the disease, and the presence or absence of complications.

As to treatment, the prophylaxis of multiple abscesses consists entirely in cleanliness and in antiseptic precautions. Cleanliness preserves the suppleness of the skin and the proper performance of its functions, while it destroys or weakens the action of a certain number of germs. In infants daily bathing, and the frequent changing of diapers to prevent maceration of the skin in the urine or in the fecal matters, are all-sufficient for the purpose. In older children, in addition to the daily tepid or cold bath, great care must be taken to insure cleanliness of the hands. No one affected with any suppurative disease should be allowed near a nursing child. Should the wet-nurse have an abscess of the breast, she will, of course, nurse the infant with the other only, and so carefully arrange the dressings that infection will be impossible. The treatment of the infected child consists of evacuation of the pus and protection of healthy parts. *Incision is never premature.* No matter how indurated an abscess may feel, it should be opened at once. The amount of pus contained in these nodular lesions not supposed to have suppurated is always surprising. The incision should be simply a puncture to the depth of the abscess which will allow of an exit of the pus. Every abscess perceptible by palpation should be incised at one sitting, were the number to reach sixty or eighty. The slight hemorrhage ensuing is less dangerous to the child than leaving foci of suppuration. Daily palpation should be made to ascertain if there are any new abscesses. Each abscess should be covered by a dry dressing of salicylic or iodoform gauze. To disinfect the neighboring skin daily baths must be given, preferably with soap and water, followed by the inunction of naphthol-vaselin one-tenth.

Alopecia Areata.—M. Horuad[1] concludes a study of this disease with the following words: Alopecia has thus been proved to be neither a parasitic nor a microbial disease. On the other hand, the alteration of the hairs which characterizes it not being comprehensible without the implication of the nervous system, and the only efficacious treatment consisting in stimulation of the hair follicles, we are forced to conclude that the affection is the result of a trophoneurosis. It is therefore evident that there is no warrant for considering the disease to be a contagious one.

Bone Disease, Diagnostic and Clinical Meaning of, in Newly-born and Nurslings.—Cassel[1] has seen 8 cases of osteochondritis among 64 cases of congenital syphilis, and reports 2 of these. One affected a 13-weeks-old girl baby who had necrosis of the right humerus and ulna, necessitating removal of the dead bone. The large wound healed in four months. The second case, a baby 4½ months old, had three gummy tumors on the skull, and separation of the epiphysis at the lower end of the left humerus. Syphilis may also affect

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the nasal bones as a direct extension of the inflammation from the nasal mucous membrane.

Rachitis involves more especially the bones of the head and thorax in very young children (it may occur as early as 4 weeks), and later the extremities. Besides these two diseases, Barlow's disease, infectious osteomyelitis, and tuberculosis may cause lesions of the bones. The last is rare during the first year of life.

Prenatal causes may result in various bone deformities—encephalocele, meningocele, spina bifida, cleft palate, club-foot, etc. During labor injury may occur to the bones of the head or extremities, while during the first year fractures resulting from traumatism are not very rare.

The author's eight syphilitic cases all occurred in infants from 4 to 16 weeks old.

Bronchitis and Atelectasis, Treatment of, in Very Young Infants.—Schilling[4] has employed Schultze's method of artificial respiration in seven cases from 2 days to 15 weeks old. Two of these he describes in detail. In all the results have been most excellent, and the method is especially applicable in cases of severe dyspnea and cyanosis. Its disadvantages are fractures, luxations. and hemorrhage into the viscera. But these may all be prevented by using proper care and swinging only ten to twelve times, allowing a short pause between the movements.

Can Tardy Hereditary Syphilis of the Bone be Successfully Treated by the Inoculation of Measles?—H. N. Potter[5] reports a case in a girl 8 years of age, in which syphilis of the bone was in an advanced stage. The child was put on an antisyphilitic treatment. Measles developed after this treatment had been followed for several years, and was followed by a very rapid improvement, which has continued up to the present time. The author thinks there was nothing in the treatment to bring about such a rapid change.

Cerebral Infantile Paralysis, Two Cases of.—Pineles[6] reports the cases as illustrating type one and type two of Marie's classification. The latter case dated from an attack of convulsions in the second year of life, and a tremor of the left arm and leg has persisted ever since. Whether or not paralysis existed at that time it is now (at the age of 13) impossible to tell. The other case followed an attack of small-pox and began as paresis with spasm of the right arm and leg. At the present time the patient is 27 years old and has decided sensory disturbances, contractures, and atrophy. Both cases probably have the lesion localized in the posterior portion of the inner half of the internal capsule.

Colitis: its Varieties in Childhood.—The greater our knowledge of the various digestive infections which occur during childhood, says Louis Guinon,[7] the better able shall we be to localize them in special portions of the intestines. Such localization is, however, a trifle artificial, the digestive tract of a child being a *unity*. In nursing infants we have gastro-

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enteritis only, but in some cases we may recognize a predominance of gastric or of intestinal symptoms, and even a colitis. In older children we can make finer distinctions; the colon acts, or appears to act, independently. and colitis may be diagnosed symptomatically, if not anatomically. Yet even here some slight symptom, such as vomiting or redness of the tongue, will show that the stomach or even the whole intestinal tract shares in the disturbance.

Acute colitis may occur at any age, but is most frequently found under 3 years. It is most prevalent in the summer, and in late summer may be truly epidemic. It may usually be traced to some defect in the diet, to the eating of unripe or decayed fruit. Large doses of calomel may cause a slight colitis, which may also arise from irritation of the rectum, as, for instance, by enemata containing naphthol in suspension, or by worms. Acute colitis may complicate or follow enteritis. It may also occur after typhoid fever when the child returns too quickly to a solid diet. In measles the diarrhea often takes on the characteristic glairy and frothy appearance of colitis. The disease has been known to appear in substitution for an attack of asthma. The acute colitis of early infancy may occur independently of all diatheses, but in older children there is almost always a neuropathic and arthritic heredity. Chronic colitis is most frequent after the age of 4 years. It may result from acute attacks, or follow constipation which has been neglected or treated by irritating methods, such as the constant administration of purgatives. The fecal matter becomes hardened masses which accumulate in the colon, adhere to its walls, sojourn in its diverticula, causing a constant irritation. This occasions attacks of diarrhea which do not remove the scybala but deceive the nurses as to the condition of the bowels. From a clinical point of view we have:

Acute colitis	mucous or catarrhal	grave, slight, localized
	dysenteric	
Chronic colitis	muco-membranous and continuous	indolent, enteralgic
	paroxysmal	simple, dysenteriform

Acute Mucous Colitis of a severe type occurs in children from 1 to 4 years of age in the heated term, beginning with vomiting, slight fever, and diarrhea. The fecal matter rapidly diminishes in amount and the mucus becomes abundant; tenesmus occurs, the anus becomes gaping and the mucosa prolapsed. The tongue is white at first, and then red at the point and margins. There is great thirst The abdomen is not enlarged, but the portions corresponding to the ascending, and especially the descending, colon are tense, painful, and burning. The facies change rapidly. The intense restlessness of the early stages gives way to prostration and even torpor. In grave cases the temperature reaches 39° C. (102.2° F.).

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The disease lasts from six to ten days. The reappearance of fecal matter is the first sign of improvement. Convalescence is prolonged. Relapses may occur.

Benign Variety.—Here we have lack of appetite, a little colic, some vomiting, frequent evacuations with a little mucus, and slight elevation of temperature. Diet and appropriate medication readily overcome this form of the disorder.

Localized or Partial Varieties.—Colitis may predominate in special portions of the intestines, as the ascending colon or the cecum; in this case the iliac fossa and right flank are swollen, there are dull pains and colics, the skin is hot, and palpation gives pain. The symptoms are very like those of appendicitis, but the pain is less, and more diffuse and cecal. There is tension, but not induration. There is no constipation, but there are glairy discharges. Cold applications which are useful in appendicitis do no good in colitis. The colitis is more frequently localized in the descending colon, the sigmoid flexure, or the upper part of the rectum. In these cases the pain is in the left iliac fossa and there is tenesmus.

Dysenteric form.—The symptoms are those of dysentery.

Chronic Colitis is more frequent than is generally supposed. It may occur after acute enteritis, or begin insidiously with vague pains, colics during digestion, or alternations of constipation and diarrhea. The children are usually pale, and the skin, especially of the face, pigmented. There are black circles about the eyes, and the skin about the nose is yellow. The lips are a bright red. The emaciation is so great as to suggest tuberculosis; there is great chilliness and susceptibility to cold. There may or may not be extreme sensitiveness of the abdomen. The large intestine is usually dilated. The children are usually neuropathic, emotional, sullen, or irascible. They complain of infra-umbilical pains, which may be paroxysmal or become almost continuous. Constipation is the rule, but may alternate with diarrhea, or there may be a diarrheal form, especially when a milk diet is given. Many of these patients cannot tolerate milk.

The prognosis is serious, for the disease is a stubborn one. Properly treated from the onset, however, the cases usually recover.

The complications may be intestinal hemorrhages, which are, however, rare; rectal prolapse, which is of little significance; appendicitis (rare), cystitis, general infectious disorders, toxic cutaneous troubles, nervous disorders, and nephroptosis.

The author describes several cases in which his treatment consisted principally of hot compresses, enemata, castor oil or calomel, according to indications, tonics, and salt baths; in one case the injection of artificial serum.

Correction of Spinal Deformity by Manual Force.—V. P. Gibney[*] writes that attempts at the correction of deformity of the spine have not seemed especially hazardous at the Hospital for the Ruptured and Crippled, especially if one takes pains to

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employ absolute immobilization immediately after correction. Several cases are cited as illustrations.

Diabetes in Childhood.—M. H. Leroux[9] says that in children the prognosis is usually bad and the course of the disease rapid. Slight glycosuria is often present in other diseases, notably severe diphtheria. A small amount of sugar is found normally—about 20 parts to 1,000, according to P. Binet—but this is not diabetes. The disease has been found at the age of 8 years, at 18 months (P. Duflocq and Dauchez, *Rev. de Méd.*, 1893), and at 8 months, following traumatism (Bernstein-Kohan). It occurs with more frequency between 11 and 14 years, and is often hereditary. The general symptoms differ only slightly from those of adults. The proportion of sugar is relatively greater, and may go as high as 1 kilogramme (2¼ pounds) in twenty-four hours for 15 litres (15 quarts) of urine. Ulcerative gingivitis, dental caries, and thrush are frequent, as are lesions of the genitalia, vulvar erythema, balano-posthitis, and phimosis. Fatty diabetes is not found in childhood; emaciation sets in at once, and death occurs between 1 month and 2 years. M. W. Pitchford (*Bull. méd.*, 1892) quotes a case in which the evolution of the disease took only twenty days. But there was doubtless a bulbar lesion, with rapid paralysis of the pneumogastric. The fatal termination is usually accompanied by phenomena which have been attributed to acetoneuria, and which consist of excitement, nausea and vomiting, dyspnea and coma.

Dilatation of the Urinary Apparatus in a Fetus.—M. Commandeur[10] reports a case of dilatation of the total urinary apparatus in a fetus, due to a congenital malformation of the ureter. These cases, he says, are of great rarity and possess merely a teratological interest, except when the lesions caused are of such a volume as to produce grave dystocia.

Diphtheria.—C. Fisch[11] presents the results of some experiments concerning the assimilation of diphtheria antitoxin. The conclusions reached are as follows: (1) The experiments tend to corroborate the theory of the chemical nature of antitoxin. (2) They show that immunization against diphtheria may be produced with perfect safety by oral administration of the antitoxic serum or the antitoxic milk. In the case of children the latter seems preferable. On the other hand, they emphasize the fact that curative effects must not be attempted by this way of administration, on account of the slowness of absorption, or at least of diffusion through the system. Even for prophylactic purposes (in families where one member is infected, for instance) it must be employed only with careful discrimination of the conditions.

John Zahorsky[12] has an article on the clinical value of diphtheria antitoxin administered by the mouth. His conclusions are that the serum acts similarly whether given by mouth or subcutaneously, but its effect occurs much later when given in former way. It is possible that the intestinal epithelium refuses at certain times to take it up, and therefore it is a less reliable

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method. This mode should be employed in mild cases when objections stand in the way of its hypodermatic use. Its use by the mouth for prophylactic measures is to be recommended, as it presents many advantages. However, if the child has been exposed to diphtheria for as much as two days, the hypodermatic method should be used. Joint pains, erythema, urticaria, and dysmenorrhea are not prevented. From a clinical standpoint, therefore, it should be used for curative purposes only in exceptional cases, but is preferable, as a rule, for prophylactic purposes.

Köster [13] reports his experience with serum therapy in diphtheria in 25 to 30 serious cases—that is, those in which laryngeal stenosis or marked sepsis occurred. He found one full dose usually sufficient; rarely was a second dose necessary. The reaction developed in twenty-four hours, the membrane began to loosen in forty-eight hours and disappeared in three to four days. No bad after-effects were noted; no tracheotomy was needed; and only one death occurred, in a boy moribund when first seen. Post diphtheritic paralyses developed just as frequently as in the cases not treated with antitoxin. Gläser [14] reports a severe case of diphtheria in a boy 9 years old, who has severe attacks of heart failure and marked paralyses as sequelæ of a pharyngeal diphtheria. Antitoxic serum was not used, the treatment consisting of applications of bichloride, one per cent. four times daily. Cure was finally complete.

Diphtheroid Stomatitis, so-called.—Ch. Mongour [15] reports clinical observations to controvert the opinion of MM. Sevestre and Gastou that there is a distinct and specific stomatitis, the so-called diphtheroid stomatitis. Clinically he has been unable to separate the aphthous, ulcero-membranous, diphtheritic, and diphtheroid varieties. The false membrane has in every case appeared to be identical, and nothing in the localization, intensity of the adhesions, color, engorgement of the ganglia, or in the general symptoms has enabled him to make a differential diagnosis. The classification of the variety of stomatitis present will have to be based upon bacteriological observations. To determine whether a stomatitis which clinically does not appear to be due to the Löffler bacillus is or is not diphtheritic in its nature, cultures upon gelatinized serum will have to be made.

Earache.—G. A. Leland [16] advises the following course of treatment. In the first stage, that of collapse or closure of the Eustachian tube and a partial vacuum, which lasts two to perhaps even eight hours after the onset of the earache, the opening of the Eustachian tube and the restoration of proper air pressure in the middle ear will perhaps establish the circulation so as to abort the inflammation at this stage or prevent its extent beyond the hyperemic stage. The author thinks this method is not contraindicated in the early stage. If, however, the case is seen later than six to eight hours after the onset, this treatment is not sufficient; it will probably have come to effusion. When the ear drum begins to bulge outward in its

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posterior segment and the earache to increase in its tendency, a free incision should be made in the posterior quadrant near the periphery.

Edward P. Morrow [17] writes that the common cause of earache is an acute inflammation of the middle ear, which is often overlooked in a very young child until a discharge from the ear announces that the fever and pain have been of local origin in the ear. It is safe to say that in all cases of recurring earache in children there is a predisposing constitutional cause, the strumous diathesis and inherited syphilis favoring the attacks. Locally, as predisposing causes, inspection will reveal enlarged turbinated bodies, deviated septum, thickened pharyngeal walls, adenoids or enlarged tonsils. or a combination of any of these conditions. With these favoring conditions, every slight attack of cold in the head gives an exciting cause that brings on an attack of middle-ear trouble with the accompanying earache. The epidemic of influenza during the past few winters has added greatly to the number of sufferers from this trouble Teething also is an exciting cause, as also is the entrance of cold water externally or through the Eustachian canal. Earache also occurs in the course of the acute infectious diseases. The acute inflammation of the middle ear causing earache may be either a simple catarrhal or an acute purulent inflammation.

Empyema, the Treatment of Chronic.—Notwithstanding statements to the contrary, B. Farquhar Curtis [18] believes that no amount of care on the part of the physician, nor any improvement in the methods of treating acute empyema which may be hoped for, can prevent the occurrence of those cases of empyema which run a latent course, the patient having no symptoms which appear to necessitate medical advice. With the exception of a few tuberculous cases which may run a chronic course like a cold abscess, a chronic empyema begins as an acute inflammation. The all-important requirement in the treatment of acute empyema is the early evacuation of the pus. But, in addition to this, the operation should be so performed and the after-treatment so conducted as to bring about a speedy recovery, for if the lung does not expand soon it will be more or less crippled by adhesions, and the costal pleura may also be covered by fibrin, so that it will not aid in the process of repair. Schede's method of operation is recommended by the author. Even weak patients bear very well the complete resection of the ribs, if it is skilfully and rapidly done. The secret of the success lies in the slight anesthesia and in proper control of the hemorrhage. Nor should fear of deformity prevent this procedure, for it rapidly diminishes with time in both adults and children, and even a permanent deformity is not too great a price to pay for a cure in these desperate cases.

Enteritis, Mucous and Membranous.—H. Triboulet [19] devotes a paper to the consideration of some etiological details of this affection in children. In the cases studied by him he finds a confirmation of the theory of heredity as a factor; in

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one case direct heredity, in two others the existence of biliary lithiasis in the parents. There was predominance of the female sex in his observations, but to this he attaches little importance. Hygienic measures and diet appear to have had but little influence upon the disease. Without wishing to be in the least dogmatic, he nevertheless believes that the simultaneous occurrence of enteritis and adenoiditis in the cases reported was more than a coincidence, and may have been related as cause and effect, the naso-pharyngeal manifestation preceding the intestinal disorder. It is well known that an exaggerated secretion accompanies acute adenoiditis, and the constant swallowing of pharyngeal mucus overloads the child's stomach, as we see by the frequent vomiting of glairy substances. It is very probable that a certain amount of this mucus is carried off by the intestines, and ends by producing an acute and even a lasting irritation. The local treatment of the adenoiditis will in such cases cause a decided amelioration of the intestinal symptoms. Sterilized milk is an absolute necessity, and small doses of calomel will not only serve as a laxative but as a local disinfectant.

Enuresis.—Alfred Hand, Jr.,[30] reports a case which had resisted about all the known methods of treatment. At the same time the mother, who was in a very nervous state incident to the care of her child, was given some nerve tonic pills, with the direction to take one of them four times a day. Misunderstanding the directions, she gave them to the boy, with the result that the enuresis ceased in two days and has not returned in the past six weeks. The formula of the pills is:

℞ Extracti cannibis indicæ.....gr. $\frac{1}{8}$
Hyoscyaminæ..... " $\frac{1}{100}$
Zinci phosphidi..... " $\frac{1}{10}$

Gastro-enteritis in Children, Prevention and Treatment of.—A. Seibert[31] believes that the distribution *en masse* of pasteurized milk for nominal prices to the most ignorant mothers are well-meant experiments, but overstep the line in direction opposite to that of the laboratories by the low price charged for the milk. A poor and ignorant mother who can daily receive prepared food for her offspring for the asking will never learn the "why" for milk cleansing; and thus, instead of arousing a diligent zeal for properly feeding her baby, such paternalism but fosters thoughtless indolence. The mothers of the tenement houses will never learn to pasteurize, while the most ignorant of them can readily be taught to sterilize milk in a pot as devised by Langermann. Wherever sterilization fails it is not the result of the long boiling, but the pathological condition of the child's digestive organs, which must be removed by the physician before any milk, boiled, sterilized, or pasteurized, can be properly digested. To dabble with the milk in such cases is dodging the issue. It is the child that needs treatment, and not the sterilizing apparatus. To prevent gastro enteric infection of the new-born is easily accomplished.

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The physician's finger should be cleansed before entering the child's mouth. Midwives, fennel tea, sugar nipples, cathartics, and filthy breast nipples can be discarded, and a modern confinement ought to be looked upon as successful not only after the mother's genital organs, but also the baby's eyes, navel, and alimentary canal have escaped pathological infection. The first principle in gastro-enteric infection is to remove all remnants of food, bacteria, and ptomaines from the stomach and intestines by means of irrigation. The second chief indication is the absolute prohibition of milk in any form as a food during the first three days of illness. Underfeeding of the child with water, gruels, and strained soups should be the means of alimentation. The author allows the convalescent child to begin with the breast and a weak sterilized mixture of cream and gruel (1 to 10) as soon as the first normal stool has appeared.

Home Modification of Milk.—W. L. Baner,[11] in an article upon this subject, states that percentage feeding has been criticised on the ground that in the present state of our knowledge we are not sufficiently conversant with the need for and the effect of the various food elements to be able to say just what modification will suit each particular case. This is true to a certain extent, and, moreover, we never shall be able to until we make a start in that direction on a scientific basis. After a few years of percentage thinking our stock of knowledge regarding sugars, fats, and albuminoids will have increased. Our principal need at the present time is greater simplicity in the methods of connecting percentage thinking with home mixing. In choosing the formula to be used in any particular case the mind of the physician must be unhampered by any thought as to whether he is going to be able to produce just the mixture to give that formula. Having done his thinking in percentages, he must then have some simple method for putting his thoughts into terms of ordinary commercial articles. The following method is submitted as an effort in this direction. It is based on the use of ordinary good cow's milk, containing on the average 4 per cent of fat and 4 per cent of proteids. It is also based on the fact that cream is simply a superfatted milk, containing practically the same amount of proteids as the milk itself. Either of the ordinary creams—that is, the 16 per cent gravity cream or 20 per cent centrifugal cream—or, if preferred, the 12 per cent gravity cream, may be used. The following table will give an idea of the principles involved:

Formula for Determining the Amounts of Cream, Milk, Water, and Dry Milk Sugar Required to Make Any Desired Quantity of Mixture to Contain Given Percentages:

Given: Quantity desired (in ounces) = Q.
Desired quantity of fat = F.
" " sugar = S.
" " proteids = P.

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To find (in ounces):

$$\text{Cream (16 per cent)} = \frac{Q}{12} \times (F - P).$$

$$\text{Milk} = \frac{Q \times P}{4} - C.$$

$$\text{Water} = Q - (C + M).$$

$$\text{Dry milk sugar} = \frac{(S - P) \times Q}{100}.$$

If 20 per cent centrifugal cream is used the denominator of the cream formula will be 16 instead of 12. If 12 per cent cream is used it will be 8 instead of 12.

Suppose, for example, we want 40 ounces of a mixture to contain 4 per cent of fat, 7 per cent of sugar, and 2 per cent of proteids:

$$\text{Cream} = \frac{40}{12} \times 2 = 6\tfrac{2}{3} \text{ ounces.}$$

$$\text{Milk} = \frac{40 \times 2}{4} - 6 = 13\tfrac{1}{3} \text{ ounces.}$$

$$\text{Water} = 40 - 20 = 20 \text{ ounces.}$$

$$\text{Sugar} = \frac{5 \times 40}{100} = 2 \text{ ounces.}$$

[Ordinary "skimmed" cream contains from 16 to 20 per cent of fat. A 12 per cent cream may be easily obtained by placing fresh milk in a tall vessel or a fruit jar or milk bottle and letting it stand on ice or in a cold room for four hours. The upper fifth will then contain about 12 per cent of fat.]

Large Thymus Gland, Sudden Death from.—Clessin[1] reviews the literature and reports a case in a baby 2 months old, who, while apparently in the best of health, was found dead in bed after having been nursed some hours previously. On being moved blood flowed from the nose. The thymus gland weighed thirty-one grains, covering two-thirds of the heart. Just above its bifurcation the trachea was so compressed as to be almost impervious. In order to explain the sudden death in perfect health we must assume an acute swelling of the thymus. While this condition has as yet not been experimentally proven, it remains clinically probable that it does occur.

Leucocytosis in Whooping Cough.—Henri Meunier[2] concludes a study of the subject as follows: 1. In the simple pertussis of childhood there is a leucocytosis remarkable for its constancy and intensity. 2. It sometimes reaches to a very high degree and is always greater than that observed in other apyretic affections of the respiratory passages; it would appear, therefore, to be a specific reaction, dependent upon the virus of pertussis. 3. It appears early, preceding the characteristic cough. It reaches its height during the apyretic period of the attacks and then diminishes, disappearing only after the total disappearance of the paroxysms. 4. The medium degree of leucocytosis during the crisis is represented by the number of 23,700 white corpuscles to the cubic millimetre. At the time

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of the appearance of the paroxysms the medium number is raised to 25,500. The number of 40,000 has often been reached and even gone beyond. 5. The increase of white blood corpuscles is relatively and actually greater in young subjects, especially at 2 and 3 years of age; it is less marked from 4 to 7 years, but is twice or three times as great as normally. The leucocytosis of pertussis is at the expense of the lymphocytes, so that these are present in an exactly inverse ratio to the polynucleated leucocytes. All varieties of white corpuscles are, however, increased. 7. The mechanism of this leucocytosis is obscure, but it is possible that the great congestion of the tracheo-bronchial glands may play a part in its production. 8. The constancy of leucocytosis in whooping cough, the fact that it is so much more marked than in other affections with a paroxysmal cough (bronchitis, tracheo-bronchial adenopathy, pseudo-pertussis from irritation or simulation), and its premature appearance (before the typical cough) render the examination of the blood of real diagnostic value in doubtful cases, and in hospitals and schools make it of great importance in the prophylaxis.

Litholopaxy in Childhood.—Alapy" expresses himself as very decidedly in favor of the operation. He reports the case of a boy of 10 who recovered perfectly after the removal of stone fragments weighing 2.4 grains, and another in a poorly nourished lad 12 years of age from whom 5.6 grains of stone were removed with excellent results. In contrast to these is a third case in a boy of 2½ years, in whom litholopaxy was contraindicated from the outset, because the smallness of the urethral canal made the passage of the smallest instrument impossible. Lithotomy was the operation indicated and performed.

Meningitis in Infants and Children.—A. H. Wentword" has an exhaustive article upon this subject. In the course of his remarks he states that a positive diagnosis can be made by means of the lumbar puncture. The fluid obtained is more or less turbid. In severe acute cases a puriform deposit frequently settles to the bottom of the test tube in a short time. Microscopic examination of the cover-glass preparations made from the sediment shows numerous polymorphonuclear leucocytes, "pus corpuscles," occasional smaller mononuclear lymphoid cells, and fibrin. Groups of the diplococcus intracellularis are found in varying numbers in the protoplasm of some of the leucocytes. One may fail to obtain a growth of the organism if the puncture is not performed during a period of the disease in which active symptoms are present. The macroscopical appearances of the fluid are not to be relied upon in all cases. A very slight admixture of blood will render the fluid turbid; and if sufficient blood is present a web of fibrin forms in the fluid after standing. In tubercular meningitis lymphoid cells are present in varying numbers, depending upon the amount of exudation in the pia, whereas polymorphonuclear leucocytes are only occasionally seen. Other differences, some of which are not always so constant, are that the fluid in cases of tubercular

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meningitis is, as a rule, less turbid; there is usually less albumin; cover-glass preparations stained may show tubercular bacilli; inoculation of guinea-pigs with the fluid produces tuberculosis; and finally, in the other varieties of meningitis, one can oftentimes obtain a growth in culture media of the organism which has caused the disease. The author had had the opportunity of observing but three cases of meningitis due to the pneumococcus lanceolatus; two of these cases were secondary to lesions in the lungs and pleura, and the third was a case of primary pneumococcus meningitis.

Microcephaly with Congenital Atrophy of the Brain.—G. Variot[11] protests against surgical operations in these conditions. Gratiolet, he says, recognized that microcephaly was due to an arrest of development of the brain during fetal life. Virchow stated that it was caused by a premature synostosis. Although the sutures and fontanelles are entirely and prematurely ossified, Variot holds that this is an effect and not a cause, that the alterations of the bones are secondary, and that the bones of the cranium sink in to fill the vacuum produced by the atrophy of the brain, just as the ribs contract in cases of purulent pleurisy. The adoption of Virchow's theory led to various experimental operations, such as the opening of fenestra in the skull, linear craniotomies, the formation of artificial sutures, with a view of allowing the brain to expand. In 1894, at the Congress in Rome, Jacobi presented the statistics of the operation in America. Out of 34 idiots operated upon, 14 died from the results of the operation; of the 19 who lived, 7 showed no improvement, 7 were slightly benefited, 3 notably so, and in 2 cases the results were doubtful. Variot cites a case of atrophy, which he describes in detail, arguing from the conditions found the absolute uselessness of surgical intervention.

Modified Milk and Infant Feeding.—Horace W. Soper[12] believes two practical points to be of value in the use of modified milk: (1) Always begin with low percentages; (2) begin with a less quantity at each feeding than the estimated gastric capacity. His chief objections to proprietary infant foods are that they are lacking in fat, the proteids are chiefly of vegetable origin, nearly all contain too large a percentage of the carbohydrate, and their prolonged use has often been the cause of rickets and scurvy.

Multiple Congenital Contractures.—Hoffa[13] reports a case of a boy with a deformed head, double-sided contracture of the platysma myoides, pigeon breast, finger contractures on both hands, both patellæ luxated outward, one club-foot and one flat-foot. The Röntgen rays demonstrated the absence of any abnormality in the several joints, and the etiology of the condition is to be found in the fact that there was a marked diminution in the quantity of amniotic fluid—that is, it was of intrauterine origin. Treatment by splints overcame the contractures in the lower extremities, so that the boy is able to walk.

Otitis, New Treatment of Chronic.—Kraus[14] reviews the

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usual forms of treatment for this very trying affection, and describes his new method as consisting of insufflation with traumatol (iodocresyl), after careful cleansing of the ear. Cotton is placed in the external auditory meatus and the insufflation repeated once every day. No syringing or other treatment is used in the intervals. Cure resulted in six days in the four reported cases, one of which had existed for two years in a boy of 4. The success of the method is to be regarded as due to two facts, namely, the antiseptic properties of the traumatol, and the fact that it is a very fine, insoluble powder, which distributes itself over the walls of the auditory canal without forming clumps and ball-like masses.

Respiratory Catarrh, Chronic, in Childhood.—Hock[28] has found that after pertussis, measles, and influenza, chronic catarrh of the respiratory tract is very common, and it also occurs as the precursor of tuberculosis in children who ex st in unhygienic surroundings. Those cases occurring as the result of rachitis or of adenoids quickly disappear when the underlying condition is properly treated.

In treating such chronic cases, one must consider both the acute exacerbations and the chronic stage. The former is easily overcome by a mild expectorant, or, if necessary, an antispasmodic, preferably antipyrin in infants under 2, and codeine in older children. In the chronic stage the author has found creosote to work remarkably well. He uses the pure creosote first, and later, when the dose becomes larger, replaces it by *creosotal.* Improvement occurs within ten to fourteen days, and cure in three to six weeks. Relapses become less and less frequent as the treatment proceeds, and yield very readily to the creosote. This method has been applied in 150 cases.

Scarlatina, a New Clinical Symptom observed in.—P. Meyer[29] calls attention to a symptom observed by him in scarlatina, to which he believes no one has as yet called attention. In its most marked form it consists of a paresis of the extremities, the patient complaining of being unable to move either hands or feet. In its usual form it is merely a feeling of heaviness of the hands, with a pricking sens ıtion, or it may consist only of tingling of the palmar surface of the ends of the fingers or of the hollow of the hands. This symptom appears during the eruption and may even precede it. It may last for a few moments only, or, which is more usual, it persists for two or three days with interruptions. Some patients perceive the condition only when they attempt to use their hands, as in grasping a glass of water; others when they emerge from a cold bath or when they remove their hands from water. The symptom is constant. The author found it in 79 out of 100 cases. It is accompanied by no pain, and may be confounded with the itching which often occurs with the appearance of the eruption, with the tumefaction of the extremities which frequently comes with the eruption, or with the stiffness of the finger joints caused by scarlatinal rheumatism. In cases of

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abortive scarlatina this symptom may be of assistance in the diagnosis. It may also be useful in the case of patients who had no eruption and in whom desquamation is tardy or of short duration. The author has not met with this symptom in other eruptive diseases.

Speech Defects and their Influence on the Psychic Development of Children.—Gutzmann [11] recognizes three varieties: peripheral-impression defects, due to abnormalities of perception; central defects, due to a variety of lesions in the brain, possibly caused by difficult or prolonged labor; peripheral-expression defects, due to muscular weakness. This last form is often accompanied by delay in walking as well as in speaking. All kinds of speech defects hinder the intellectual development, as evidenced by the rapid progress these children make after being cured of their defect. Treatment should begin at the age of 3, and must not be deferred much longer. It is especially wrong to raise the hope that the child will outgrow the defect without treatment.

Spina Bifida.—Jacob C. Rutherford [12] reports a case of this disorder in which operation was performed on a child 10 days old. Leaking occurring, either from the slipping or cutting of the ligature, through an opening about as large as a lead in a pencil from the vertebral canal, the author decided to cauterize the tissues about the opening with bichloride of mercury. This proved quite successful and the child recovered.

Stools of a Nursling, Fly Larvæ in.—Cohn [13] reports the case of a 3-months-old baby girl who had been fed on Swiss condensed milk for two months and later on cow's milk and water. An attack of dyspepsia (vomiting and diarrhea) began soon after the change in diet and lasted for weeks. Large numbers of white bodies, identified as fly larvæ (musca domestica), were found both in the vomit and in the stools. These were not looked upon as the cause of the diarrhea; in fact, fly larvæ are probably harmless in the gastro-intestinal tract. They were most likely deposited upon the child's lips or the nipple of the feeding bottle and then swallowed.

Subglottic Constrictions following Intubation.—Maurice Boulay [14] reports two cases of the kind. He believes that two forms of laryngeal constriction may follow intubation for croup or acute laryngitis in children. The first is due to ulcerations produced by the pressure of the tube upon the inflamed and more or less swollen subglottic mucous membrane. These are cicatricial contractions and are very difficult to overcome. The second is the result of an infiltration of the subglottic mucosa, which, instead of being reabsorbed, passes on to a chronic condition; it is not produced by intubation, but in spite of it; it is also found after tracheotomy and may prove an obstacle to removal of the canula. This form is less serious than the former, and may usually be overcome by several treatments by dilatation or by intubation itself.

Suppuration of Middle Ear.—In the course of some remarks upon this subject William Cheatham [15] states that with

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proper management of the nose and throat trouble, simple cleansing with antiseptic solution by means of sprays or the post-nasal syringe, many of the middle-ear affections might be prevented. The author's treatment of earache in which there is no secretion is hot water and the application of leeches. The next best thing where there is no secretion is opium. If there is any secretion opium is not indicated until an opening has been made. In suppurative troubles about the throat and middle ear opium is not safe.

Tuberculin, the Diagnostic Value of.—Dillon Brown[4] writes that success in the treatment of tuberculosis depends upon an early diagnosis, and there is no disease in which the difficulties in the way of an early diagnosis are greater. Tuberculin makes this comparatively easy. It is simple to use and it is safe for the patient. If the reaction is absent you know almost positively that tuberculosis is absent. If the reaction is present you know that in four cases out of five tuberculosis is present.

Uterine Prolapse.—M. Ballantyne[19] reports a case of congenital prolapse of the uterus and vagina. The infant observed was six days old, and had spina bifida and talipes The prolapsus was easily reduced, but the child died on the seventh day.

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ITEMS.

THE following is the programme of the twenty-third annual meeting of the AMERICAN GYNECOLOGICAL SOCIETY, to be held at Boston, Mass., May 24, 25, and 26, 1898, in the hall of the Boston Society of Natural History, corner of Berkeley and Boylston streets:

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FIRST DAY—*Tuesday, May 24.*

Morning session at 9:30.

1. Address of Welcome. By A. D. Sinclair, M.D., Boston.

Papers.

1. The Treatment, through the Posterior Vaginal Cul-de-sac, of Adherent Uteri. By William R. Pryor, M.D., New York.
2. The History of the Early Operations for Fibroid Tumors. By Charles P. Noble, M.D., of Philadelphia, Pa.
3. The Porro Operation or Complete Extirpation of the Uterus. By Hermann J. Boldt, M.D., of New York.
4. Ultra-Conservatism in the Surgery of the Tubes and Ovaries. By Henry C. Coe, M.D., of New York.
5. Bacteria of the Vagina and their Practical Significance, based upon Examination of the Vaginal Secretion of One Hundred Pregnant Women. By J. Whitridge Williams, M.D., of Baltimore.
6. The Treatment of Myomatous Uteri. By Howard A. Kelly, M.D., of Baltimore.

Adjournment at 12:30.

Afternoon Session at 2:00.

7. Discussion: Has Electricity Ceased to be a Useful Therapeutic Agent in Gynecology? By Henry J. Garrigues, M.D., of New York; George J. Engelmann, M.D., Boston; Willis E. Ford, M.D., of Utica; Egbert H. Grandin, M.D., New York.
8. Conservative Operations upon the Uterine Appendages. By A. Palmer Dudley, M.D., of New York.
9. The Patency of the Stump after Salpingectomy. By J. Wesley Bovée, M.D., of Washington.
10. Congenital Pelvic Kidneys Obstructing the Parturient Canal; with Report of a Case of Vaginal Nephrectomy. By Edwin B. Cragin, M.D., of New York.
11. Hernia of the Ovary, with Report of Two Cases Cured by Laparatomy. By B. Bernard Browne, M.D., Baltimore.
12. Cases of Pregnancy following Ventrofixation, and Improvements in the Technique of the Operation. By A. Lapthorn Smith, M.D., of Montreal.

Adjournment at 5:30.

SECOND DAY—*Wednesday, May 25.*

Morning session at 9:30.

13. President's Address.
14. (*a*) Removal by Abdominal Incision of the Remains of an Extrauterine Fetation of Fourteen Years' Duration. (*b*) The Method of Choice for the Removal of Hairpins from the Bladder in Women. By Andrew F. Currier, M.D., New York.
15. Observations in Regard to General Anesthesia, especially by the Schleich Mixtures. By Henry J. Garrigues, M.D., of New York.

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16. Surgery of the Uterus and Adnexa per Vaginam. By W. H. Wathen, M.D., of Louisville, Ky.

17. The Results of Nephropexy for Movable Kidney. By George M. Edebohls, M.D., of New York.

18. A Case of Abnormally Displaced Ovaries, Rudimentary Uterus, and Absence of Vagina. By Hiram N. Vineberg, M.D., of New York.

Adjournment at 12:30.

Afternoon session at 2:00.

19. Should Non-Absorbable Ligatures be Discarded in Gynecological Surgery? By Howard A. Kelly, M.D., of Baltimore; R. Stansbury Sutton, M.D., of Pittsburg; Seth C. Gordon, M.D., of Portland, Me.; Charles P. Noble, M.D., of Philadelphia.

20. A Case of Endothelioma Lymphangiomatodes of the Cervix Uteri. By Hunter Robb, M.D., of Cleveland, Ohio.

21. Collective Investigation on the Use of Thyroid Extract in the Treatment of Fibroid Tumors.

22. Business meeting with closed doors at 5:00.

THIRD DAY—*Thursday, May 26.*

Morning session at 9:30.

23. The Surgical Treatment of Sterility—How Far is it Justifiable or Expedient? By William M. Polk, M.D., of New York; Matthew D. Mann, M.D., of Buffalo; W. Gill Wylie, M.D., of New York.

IN MEMORIAM.

1. William T. Lusk, M.D. By Thaddeus A. Reamy, M.D., of Cincinnati, O.

2. Cornelius Kollock, M.D. By Richard B. Maury, M.D., of Memphis, Tenn.

3. J. Braxton Hicks, M.D. By Paul F. Mundé, M.D., of New York.

4. S. Tarnier, M.D. By M. Charpentier, M.D., of Paris, France.

5. Theophilus Parvin, M.D. By William H. Parish, M.D., of Philadelphia, Pa.

6. Henry P. C. Wilson, M.D. By B. Bernard Browne, M.D., of Baltimore.

THE SECOND PERIODICAL CONGRESS OF GYNECOLOGY, OBSTETRICS, AND PEDIATRICS will hold its next meeting at Marseilles from October 8 to 15, under the presidency of Professors Pinard (Section of Obstetrics), Pozzi (Section of Gynecology), and Broca (Section of Pediatrics). Communications should be addressed to Dr. Queirel, General Secretary of the Congress, 20 Rue Grignan, Marseilles.

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THE AMERICAN

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VOL. XXXVII. JUNE, 1898. No. 6.

ORIGINAL COMMUNICATIONS.

THE CESAREAN VERSUS FETAL MORTALITY.[1]

BY

EDWARD REYNOLDS, M.D.,

Boston.

THE proposition which I wish to advocate to-night is that the maternal mortality of the Cesarean section has now become so low that its performance is justified in all cases in which a mechanical obstacle renders the delivery of an otherwise healthy woman by the usual obstetrical operations more than ordinarily difficult and dangerous; or, to put it more specifically, I assume that there is no longer any question about the relative positions of the Cesarean section and craniotomy to the living child, in healthy women not exhausted by long labor, but I hold that the question which still remains open to argument is the position of the Cesarean section as contrasted with unusually difficult high forceps or version.

It is common to consider such questions from the standpoint of pelvic measurements, and to speak of them as though they

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, April 22, 1898

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were questions to be settled by mere matters of inches or centimetres. My own experience, and that of the men with whose work I am familiar, has, however, convinced me that our means of estimating the variations in the size and consistency of the fetal head are so extremely inaccurate as to reduce the measurement of the pelvis to a matter of scientific interest and study, and a measure useful in the teaching of students rather than an infallible guide to the practitioner. The utmost use I can personally permit myself to make of pelvic measurements is to say that I consider the external measurements of considerable value in determining the kind of deformity which is present, and that I believe that pelves which measure in the neighborhood of 3½ inches in the conjugate offer an obstacle whose results will vary in individual cases in accordance with the characteristics of the head and the kind of deformity present, from a mere prolongation of labor to an impossibility of delivering the living child through the natural passages. The estimation beforehand of the amount of difficulty to be expected in a given case with such a measurement, I believe to be the most difficult problem which is ever presented to the obstetrician, and one the discussion of which is foreign to the purpose of my paper.

My theorem may then be reduced to the following terms:

1. *Much-contracted Pelves.*—With a pelvic measurement of not more than 3 inches in the conjugate, I believe the Cesarean section to be the only operation which should be considered in healthy women not exhausted by long labor and at full term.

2. *Primiparæ with Slightly Contracted Pelves.*—When a healthy primipara is found to have a conjugate of between 3 and 4 inches, I believe that the amount of difficulty which will occur should be estimated by observation of the progress of labor; but that the possibility that an indication for the Cesarean section may arise should always be borne in mind in such a case, and that all the preparations for it should be made beforehand, or at least during the first stage of labor.

3. *Multiparæ with Moderate Contraction.*—When any definite contraction is associated with a history of repeated stillbirths during previous operative labors, I think that the Cesarean section should be chosen *ab initio.*

As an advocate of what will appear, to many, so radical a position, you might perhaps expect that I should come before you fortified with statistical conclusions drawn from long lists

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of cases extracted from the literature of the subject; but the ease with which statistics can be made to prove anything which is desired is well known to every one, and I am personally so firm a disbeliever in this method of argument in matters medical that I have preferred to quote only the cases with which I have been personally connected, supported to some extent by others which have occurred in the hands of men whose judgment and operative methods are personally familiar to me and which have been communicated to me personally by their authors. In short, I propose simply to offer you my own opinions gained from experience, and for comparison with those of other speakers; but, as a stranger, it is perhaps fitting that I should first say a few words as to what that experience has been. I have formed the opinions which I now express as the result of an experience which, from the standpoint of the ordinary operations, is derived from twelve years of service in a clinic which now delivers 2,500 women each year, as well as from my private and consulting practice seen during the same time; and as regards the Cesarean operation, from a personal experience of seven upon which I have operated myself, with three others in which I have advised and witnessed the operation as a consultant. To these I may add twelve other Cesarean operations which have either been performed by my colleagues in the Boston Lying-in Hospital or been privately communicated to me by professional friends with whose personal equation I am sufficiently familiar to render their experience of value to me. Many of these cases also were seen by me either before or after operation. Of my own cases there were two in which the indication was absolute—*i.e.*, in which the women were at term and the size of the pelvis was too small for the delivery of even a mutilated child per vias naturales. Four were done for pelves of about 3½ inches in the conjugate in women in whom good operators had previously lost from one to three children by forceps or version; one in a pelvis of the same size in which I myself had previously delivered a living but badly marked child after the most difficult forceps operation which I have ever done, the second child being a half-pound larger and with a very fully ossified head, which had made no attempt to engage during nearly two hours of forcible second stage labor; four more cases in which, as a consultant, I have recommended the Cesarean were all multiparæ of this class, whose previous labors had resulted in the delivery of intact but still children by the ordinary operations.

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In all the twenty-two Cesarean cases which I quote the recovery of the mothers was uneventful, and twenty-one of the twenty-two children are alive to-day, the other being the child of an idiotic dwarf, which was born alive but died afterward from inherent weakness.

Before starting upon the argument by which I hope to sustain my position, I wish once again to urge upon you that I restrict myself entirely to the question of the Cesarean as opposed to more than usually difficult, but not necessarily hopeless, high forceps or version in healthy women not exhausted by long labor and under the care of experienced men; it is essential to a fair consideration of my position that you should remember these limitations.

The first essential to a comparison of the several operations from this point of view is the establishment of a fair conception of the intrinsic mortality, maternal and fetal, of the intrapelvic obstetrical operations under similarly favorable circumstances, taking care on each side to consider only the intrinsic risks of the operation. The advance of asepsis has made the more difficult operations so familiar, has robbed them so completely of their early terrors, that most experienced operators have grown to feel that the maternal mortality of high forceps and version under favorable circumstances and in experienced hands is practically *nil*. With this view I am myself inclined to agree, but I should be inclined to suspect either the judgment or the experience of any operator who contended that these operations were absolutely free from any intrinsic maternal risk. As it is always well to check the general opinion which one has reached by looking over the actual records of his cases, I have reviewed the books of the Boston Lying-in Hospital for the last ten years with regard to both the maternal and the fetal mortality of the operative cases. I find that during that time high forceps or version was performed by members of the permanent staff for high delay of the head, uncomplicated by any pathological occurrences on the part of mother or child, 75 times. Out of this list, which comprises all the difficult intrapelvic operative deliveries, there was one maternal death, but this was due to pneumonia during the puerperium, and was certainly not the result of the individual operation employed. These cases are of course too few to justify any conclusion upon what is probably at most always a fractional percentage of maternal mortality. But I think that most experienced operators will agree that, as an advocate of the Cesarean section for the sake of the fetus, I am

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presenting the obverse side of my proposition not unfairly when I say that, under the favorable circumstances of healthy women not exhausted by long labor and in the hands of experienced men, the intrinsic mortality of the ordinary obstetrical operations, though existent, is probably to be found at less than one per cent. In estimating the maternal mortality of the Cesarean section under the same favorable circumstances, I believe that we are met at the outset by a similar difficulty—namely, that the number of cases even yet recorded, and more especially the experience of any one man or of any ordinary collection of operators, is too small to enable us to compute the mortality exactly. Those who are familiar with the large maternal mortality which appears upon the face of the statistics of the operation as ordinarily published may be surprised at this statement, but a personal statistical study which I made a few years ago of all the cases which I could find reported up to that date showed that no death had occurred in the class of cases under consideration—*i.e.*, healthy women not exhausted by long labor and under the care of experienced obstetricians. My distrust of statistical studies of cases not personally familiar is, however, so pronounced that I prefer to disregard these statistics and rest upon my belief that most men who have performed this operation repeatedly under such circumstances and have so come to be familiar with its ease and safety will agree with me that the intrinsic mortality which can be attributed to it, as distinguished from the performance of the alternative operations, is probably not larger than one per cent. This statement, however, must be accepted only with the reservation that it excludes from consideration unfavorable cases, inferior operating, and the small percentage of casualties which will necessarily attend upon the performance of any operation, such as death from anesthesia *per se,* and other similar causes.

If the above argument be accepted—*i.e.*, if the dangers to the mother are not essentially enhanced by the substitution of the Cesarean section for unusually difficult forceps or version—we are then brought to the question of whether the risks to the fetus are essentially changed. This question is much more easily settled by reference to the small list of cases which any one of us may personally know, since the difference in fetal risks is sufficiently marked to become apparent at once. Repeating once more the caution that I am considering only favorable cases, favorably situated, and in the hands of expe-

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rienced men, and referring once more to the 75 difficult operative deliveries which I have quoted above as occurring in the Boston Lying-in Hospital during the last ten years, among this list I find 23 still-births, a mortality of about 30 per cent. When it is remembered that I have excluded from this list cases which were admitted to the hospital for neglected labor; that all the cases were operated upon by members of the permanent staff, all of whom had been connected with the hospital for a number of years at this date; that no pathological conditions other than mere mechanical delay were admitted to the list; and that the mothers were all healthy at the beginning of labor, it will, I think, be conceded that I have treated the minor operations fairly in investigating their fetal death rate.[1] Yet we have in these 75 cases 23 still-births, as compared with no still-births in the 15 Cesarean sections performed in the same institution, or in the 22 cases which I am able to quote from personal knowledge and which I know to be a complete list of all the cases done by the operators whom I quote, so that I am able to report 22 cases recently done in Boston with neither maternal nor fetal mortality.

This is certainly a marked difference, but I believe that before accepting it we must guard against giving the Cesarean section too favorable a showing as regards the prognosis for the fetus. My own experience, and that of all the other operators with whom I have spoken upon the question, has been that, in spite of the great rapidity with which the child is delivered, it usually requires a certain amount of stimulation and care before it begins to breathe, and in one of my own cases a large and healthy child with a strong heart beat resisted

[1] This record of 23 still-births in 75 cases after difficult operative labor seems at first sight an extreme one, but in deference to the institution I think it ought to be said that those 23 still-births constitute all the still-births from mere mechanical causes to be found among 15,000 deliveries during the period investigated. I regret to be obliged to add that a careful study of the list of cases which were selected for me by my house officer shows that the greater number of the deaths occurred in the outdoor department, and that the cause of the still-birth in the greater number of cases was probably due to the delay in obtaining the services of the member of the staff who was on duty, after the house physician had found himself confronted by an unusually difficult case. This is another proof of the inaccuracy of the statistical method, even when applied to one's own clinic. That the still-birth rate of difficult intrapelvic deliveries is greater than that of the Cesarean section is, however, a point which I think will be generally conceded.

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attempts at artificial respiration, etc., for so long a period as to alarm a very experienced obstetrician who was in charge of it. This happened in a case in which the operation was rapid, in which the extraction of the child from the uterus was unattended by any delay, and in which the condition of the child was apparently first-rate at the beginning of the operation. Although I have known of no fetal death from this cause, I am still disposed to concede, then, that in any large collection of cases of Cesarean section, even though done under the most favorable circumstances, we shall find that there is some fetal mortality, although I believe that it will be an extremely small one, probably not more than a fraction of a per cent.

To obtain a complete view of the situation we must consider for a moment a third expedient, that of the induction of premature labor at a period which corresponds to the size of the given pelvis. With regard to this it is common to say that in these days of asepsis the induction of labor has no maternal mortality and that it saves the vast majority of the children. I am ready to concede that the maternal mortality of the induction of labor is as small as that of any of the other operations, but hold, as before, that in the hands of experts all the maternal mortalities are so trifling that their differences are not fully understood and are at most unimportant; while I believe, upon the other hand, that the induction of premature labor is by all odds the most dangerous method for the child, being made so by the comparative uncertainty of our results in measuring the pelvis and the necessarily great uncertainty of the size to which the individual child will have attained at a given point in pregnancy. With regard to the fetal mortality, I believe that the common statement that the induction of labor is capable of saving the vast majority of children may be fairly interpreted to mean, if we consider the ultimate survival, the saving of from 80 to 90 per cent of the children; and in looking over my own experience, both in hospital and in private practice, and adding to it the opinions of the men with whose work I am most familiar, I find that the fetal mortality, when taken *in toto*, is by no means small, probably from all causes 20 per cent. I find, too, that the greater part of this fetal mortality was due to one of two mistakes: either to the induction of labor at too early a period for the mechanical difficulties involved, thus sometimes sacrificing the child to unnecessary prematurity, or else, and not uncommonly, to the induction at a period when it was necessary to complete the labor by forceps, thus

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complicating the fetal dangers by the addition of the very high mortality which always attends the operative delivery of premature children.

The operation of symphyseotomy should certainly be considered in such a paper as this, but upon this point I can only say that it is my own belief that this operation should properly be restricted to the class of cases from which I myself exclude the performance of the Cesarean section—that of moderately contracted pelves in women not previously healthy or in women exhausted by long labor.

To sum up the whole situation, my view of the case is that the maternal mortality of the Cesarean section, when restricted to the favorable cases, which alone I am considering, is as low, and the fetal mortality greatly lower than those of any other method of dealing with more than ordinarily difficult operative deliveries. The practical conclusions which I draw, then, from my experience in the conduct of labor as a whole are:

1. That in women who are the subjects of visceral disease or other previous ill health, and in women who are exhausted by long labor, the maternal mortality of the Cesarean section is too great to allow of its performance in the interests of the child alone.

2. That in primiparæ with moderate contraction the decision whether or not the Cesarean section should be performed as an alternative operation at the beginning of labor in preference to an attempt at an intrapelvic delivery, is a decision which is intrinsically so difficult that it should be attempted by none but the most experienced obstetricians.

3. That in most such cases of moderate contraction in primiparæ it is best to wait until the progress of labor teaches us which is to be the safer operation in the given case.

4. That when any healthy woman has lost one child by a difficult operative labor in the hands of an expert she should in the next labor be prepared for Cesarean section and delivered by it, unless the course of labor shows that from some changed condition—*e.g.*, a small child or a more favorable position—a forceps delivery is likely to be easy.

5. That when any case occurs in the practice of the comparatively few men who are really experienced in both obstetrical and abdominal surgery, in which an attempted forceps operation proves to be exceptionally difficult and version promises no better results, the forceps operation should be suspended, and,

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if the fetal heart is undisturbed, should be abandoned in favor of the Cesarean delivery.

6. That in very small pelves—*e.g.*, those under 3¼ inches in the conjugate—the Cesarean section in favorable circumstances is the operation of preference.

Further, in what I have so far said I have restricted myself to the practice of specially experienced men, but at the conclusion I would recommend to the general practitioner the following rules for his guidance:

1. No man should recommend or undertake the Cesarean section unless he is able to make preparations adequate for the performance of any abdominal operation and to secure proper assistance.

2. In unfavorable cases the maternal mortality of the section is too high to justify its performance for the sake of the child alone.

3. In the present state of obstetrical knowledge there must be many cases of high delay in primiparous labor in which no difficulty is anticipated until the delays which would be incident to the procuring of a consultation and the subsequent preparations for the Cesarean section would necessarily be fatal to the child. In such cases, the maternal mortality being about equal, the child's best chances lie in the application of one of the only operations which can be done immediately—*i.e.*, the forceps or version—but in the subsequent pregnancies of the same woman the pelvis should be measured during pregnancy, and, even if no contraction is found, preparations for a Cesarean section should be made before the woman is allowed to go into labor.

4. When any practitioner is consulted by a patient in whom a previous labor has resulted in the delivery of a still-born child by high forceps or version performed for simple delay—*i.e.*, in the absence of obstetrical emergencies—the pelvis should be measured and the question of the performance of the Cesarean section should be settled in advance of labor upon the rules already laid down.

5. The decision as to the choice of operation is the only point in the matter which demands exceptional experience, and, a decision that the Cesarean section is indicated having once been reached, the operation itself may be performed by any man who has had a fair experience in abdominal surgery.

In short, I believe the gist of the whole matter to be this:

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that the progress of the Cesarean section, in spite of its safety in favorable cases, has been delayed by our inheritance of a long-established prejudice. There is probably not a man here who was not taught at the beginning of his medical education that the Cesarean section was an operation which from the necessities of the case could never be wholly eliminated from practice, but which for long ages had been so almost necessarily fatal that it must be reserved for a last and desperate resort, so that when the operation was revived in its modern form the collective mind of the profession was already made up against it. Is it not time for us to disregard this time-worn superstition and look the facts in the face, as we should do with any other operation?

130 MARLBOROUGH STREET.

VAGINAL ABLATION IN PUS CASES.[1]

BY

W. R. PRYOR, M.D.,
New York.

(With ten illustrations.)

IT is a matter of satisfaction, to those who first advocated removal of the uterus whenever both adnexa were to be sacrificed, to see that their conclusions have been very generally accepted. The question now is not, Shall an ablation be done in these cases? but, how?

No matter what the skill of an operator and what his ability as a diagnostician, every cavity operation is, up to a certain stage, essentially exploratory.

By the use of certain instruments and a particular posture of the patient devised by the author, this exploration can be as accurately made by vaginal section as through the abdomen. Having established by exploratory incision the propriety of removing the uterus and adnexa, these questions are involved: the possibility of completeness, the mortality, and the results.

By the old operation of removal *en masse* the operation was often incomplete, portions of pus sac being left. The cause for this was found to be the inability to enucleate the adnexa after

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applying forceps low down, because the instruments were in the way and fixed the pericervical tissues, and because the uterus blocked the passage to the adnexa and ovarian arteries. These difficulties are done away with by the operation I will describe.

So far as mortality is concerned, there is practically none

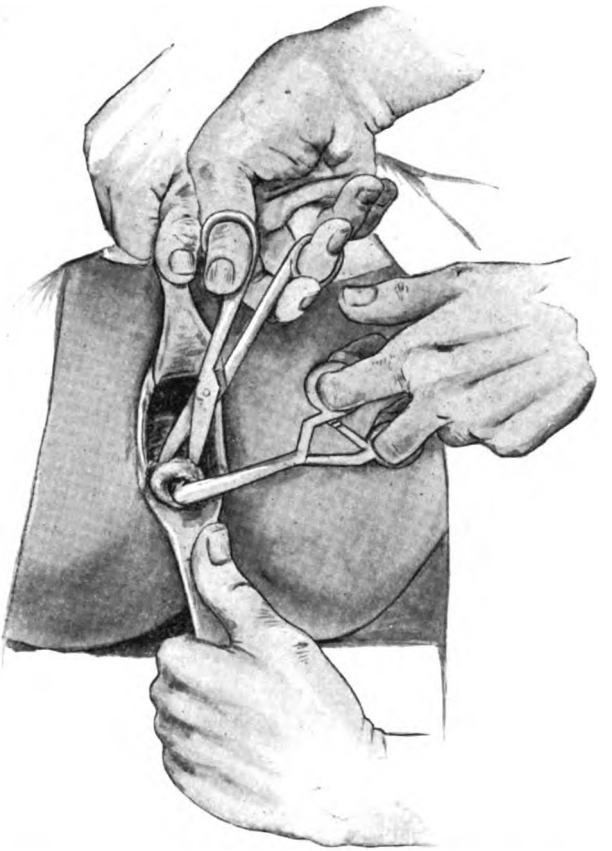


FIG. 1.—The uterus is drawn down by the intrauterine traction forceps and the vesico-cervical fold is incised with scissors.

from vaginal hysterectomy in pus cases. I say "practically," because I have lost no case, but expect to have the same fortune meted out to me as to my confrères. The operation is so rapid, the narcosis so limited, that fatal complications are not met with, as pneumonia, nephritis, etc. But comparisons are hardly fair between the vaginal and abdominal routes, because

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we exclude from vaginal work puerperal cases and those associated with appendicitis and fistulæ into the small gut, the very ones which die most often after celiotomy. As to the ultimate results, they are far better from the vaginal operation, and surgical accidents are not more frequent after one than after the other.

In the discussion of the indications for the two operations I do not think any "*versus*" can be properly introduced.

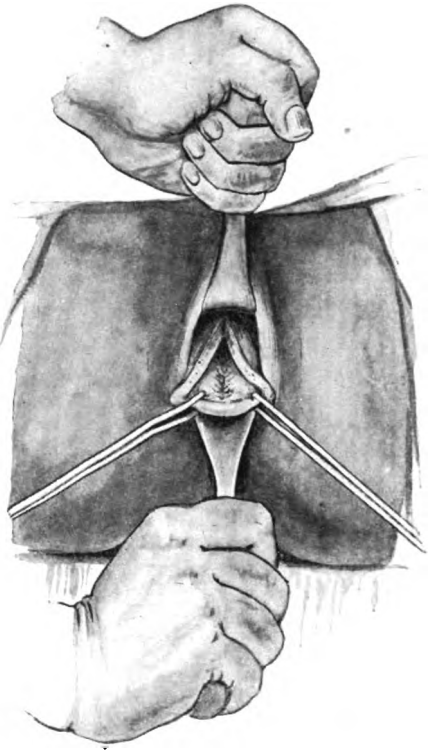


FIG. 2.—The bladder has been separated from the uterus, and the anterior wall of the uterus split with scissors a little above the internal os.

Ablation by Hemisection.—"I divide my difficulties by splitting the uterus." The uterus is curetted and swabbed out.

The Incision.—This does not completely circle the cervix. Posteriorly it is made at the cervico-vaginal junction, so that the cul-de-sac is easily entered. Anteriorly it is made. *not* near the external os, but enters the loose pericervical tissue between the bladder and cervix. The better anatomies show this point. Upon each side an eighth of an inch of vaginal mucous mem-

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brane separates the sides of the incisions. I leave this (*a*) to preserve intact the base of the broad ligament containing the uterine artery, and (*b*) to hold my last pairs of forceps. Those who completely circle the cervix displace upward and outward the uterine arteries and as often miss as catch them with the forceps intended to secure them.

I first enter the posterior cul-de-sac, if this is easily done, but

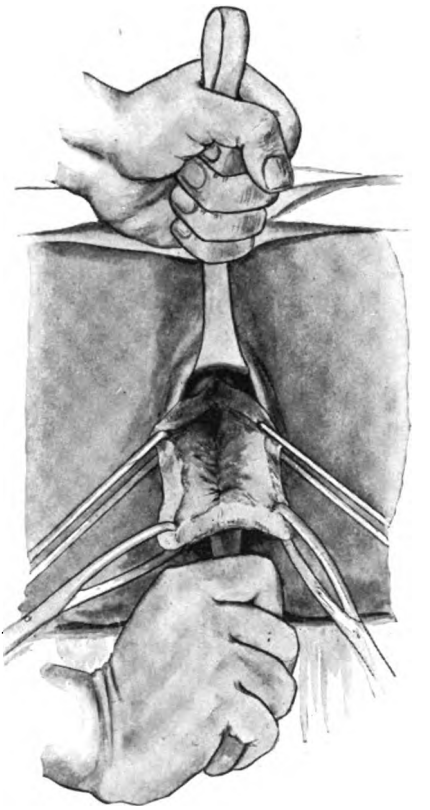


FIG. 8.—The anterior wall of the uterus is still further split, and the severed tissues are rolled from beneath the pericervical ring by twisting the forceps.

I do not waste time in attempting this. In some cases where the cul-de-sac is obliterated the pelvic peritoneum cannot be entered at this stage.

I next introduce my intrauterine traction forceps. This makes me absolute master of the position and mobility of the uterus. By means of it I can rotate the uterus while dissecting off the bladder, so as to accurately differentiate the firm

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uterus from the loose reticular tissue between the bladder and uterus. The tissues are cut with the scissors and are *rubbed off* the cervix by the fingers. In doing this again the forceps is found useful as furnishing an immovable point of counter-pressure (Fig. 1).

When the anterior peritoneum is severed by the fingers the lateral attachments of the bladder to the uterus are carefully

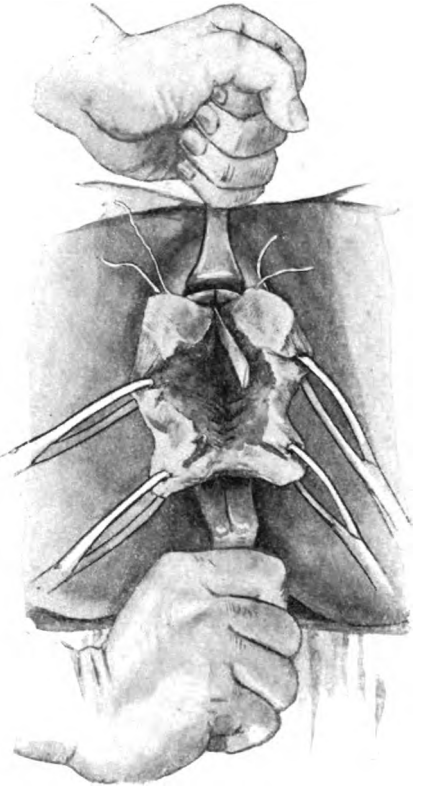


FIG. 4.—The cornua uteri have appeared beneath the bladder. Gauze pads have been introduced, held by strings. The grooved retractor is in place behind the uterus, and the knife is splitting the posterior uterine wall.

broken by the fingers. Up to this point no attempt has been made to separate the adherent adnexa. While supporting the uterus one index finger is passed up behind the uterus as far as it can reach, care being taken not to free omentum, intestines, and adnexa, except in the middle line to allow of passage of the finger. To try to free attached organs now is a waste of time and succeeds in loosening them about enough to allow them to

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prolapse into the vagina and get in the way. This completes the first stage.

Hemisection.—The perineum is held down by a long Jackson speculum and the bladder held up by a short, narrow Jackson. Into each lateral angle of the cervix bullet forceps are hooked and the intrauterine forceps removed. Up as high as he can see upon the anterior surface of the uterus, the ope-

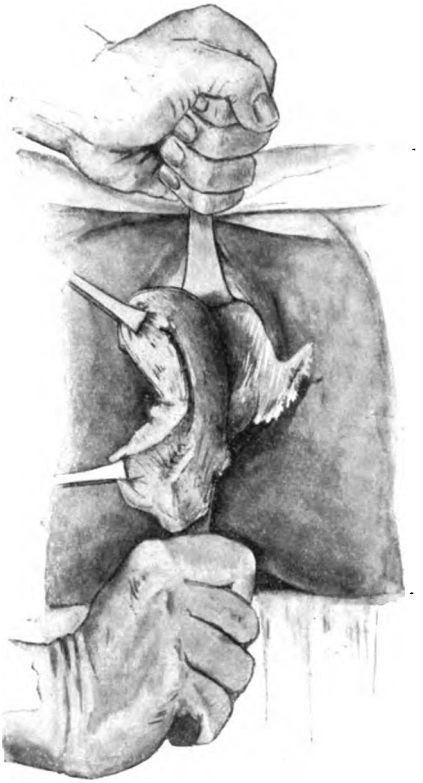


FIG. 5.—The uterus has been split in two. One half has been shoved into the pelvis and the right half is swung from beneath the bladder. The adnexa are shown drawn out.

rator splits the uterus exactly in the middle line (Fig. 2). At the upper angle of this cut, serrated-toothed forceps are fastened upon each side and the uterus drawn down as far as it will come (Fig. 3). By rotating the forceps outward the uterine tissue below is gotten away so that that above can be brought down.

Alternately splitting and drawing down the uterus in this manner, after a time the cornua appear. When this occurs the

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posterior retractor is removed and a "retracting director" is introduced. This is made to pass up behind the uterus along the track made for it by the finger. If held properly it will depress the perineum and at the same time pull the uterus

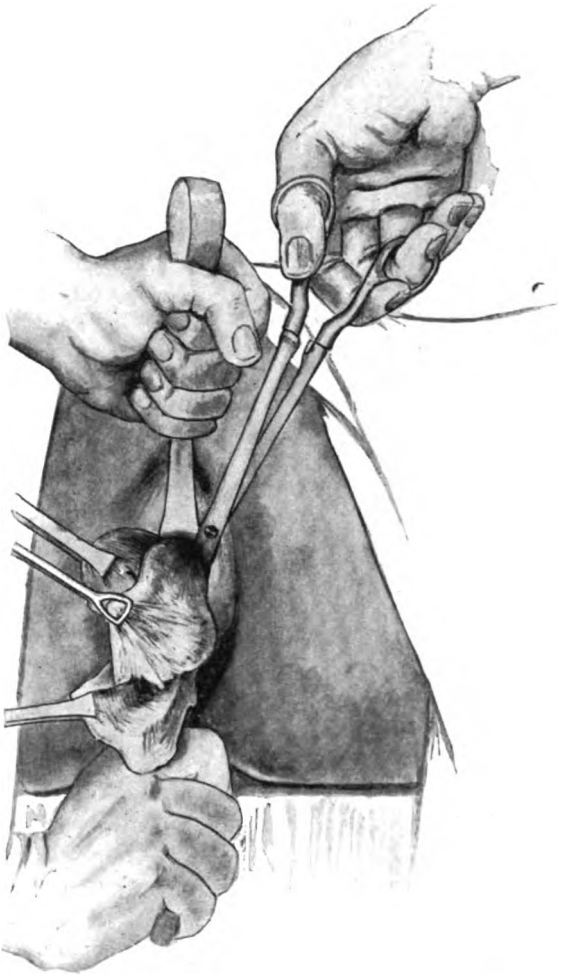


FIG. 6.—Showing the method of holding the adnexa forward. The forceps are being applied to the right ovarian artery.

further forward than is possible with the forceps. The Jackson retractor raises the bladder above so that the groove in the director can be felt and seen. A special bistoury is introduced and the uterus split in two halves (Fig. 4). One half (the

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right) is shoved up into the pelvis, secured by two forceps. All retractors are removed. This completes the second stage.

Enucleation of the Specimens.—All that has preceded is to facilitate this.

One half of the uterus being out of the way in the pelvis, three fingers, or even the whole left hand to the thumb, are passed into the pelvis, with the palmar surfaces of the fingers

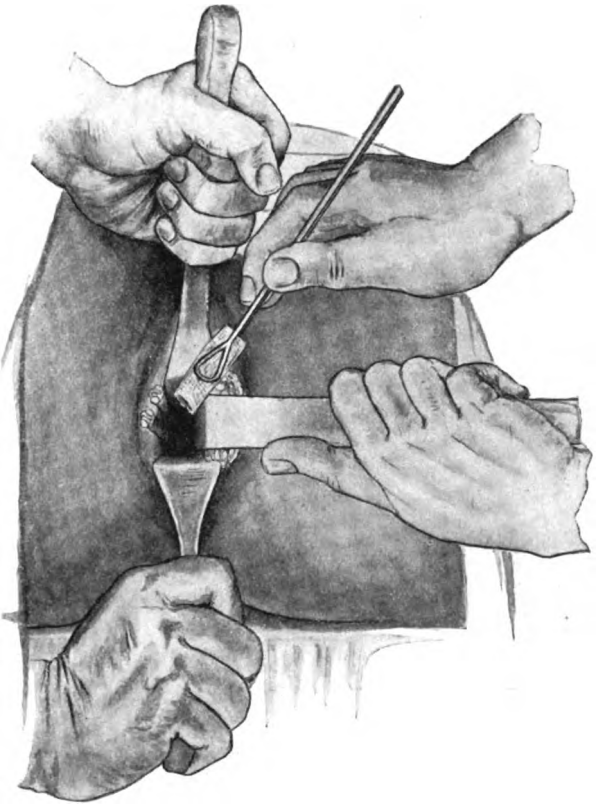


FIG. 7.—Method of applying the "Pelvic-Mikulicz" dressing.

to the woman's left. At the same time the left half of the uterus is drawn down and rotated outward, so that the uterine canal faces the operator (Fig. 5). When this is done, nothing obstructs the pelvis, and the operator can enucleate the ovary and tube with plenty of room in which to work. In fact, the right half of the uterus being above the pericervical ring and the left half below it, the operator has all the space between

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the rectum and bladder in which to work. While engaged in this enucleation he appreciates the advantage of having no clamps on the tissues to render them immobile. After freeing one ovary and tube they are left alone and the corresponding half of the uterus shoved up into the pelvis. The right half is brought down and enucleation of the right adnexa is made. After the right ovary and tube are free they are pulled up above and anterior to the cornu by Luer's forceps and the right ovarian artery is clamped (Fig. 6). *This is the first* pair of forceps applied. It is put on from above

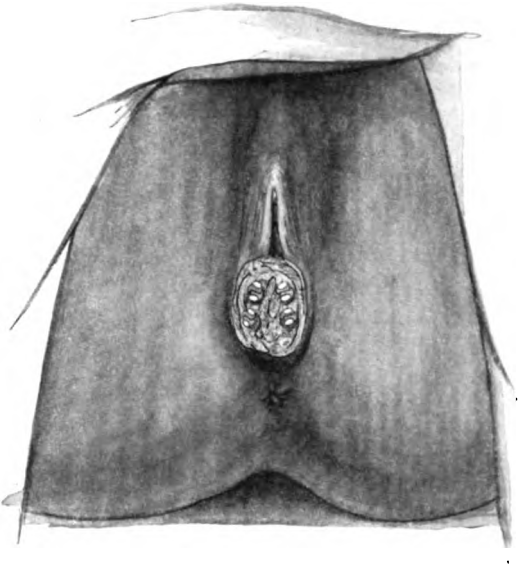


FIG. 8.—The dressing complete.

down, the index and middle fingers of the left hand keeping the intestines up. In applying the forceps in this way, the vessels to be compressed, the ovarian, are caught by the bottom of the forceps and not near the points of the bite, and there is no possibility of catching the omentum or gut in the point of the forceps. The assistant holds this forceps while the broad ligament is cut to its points. The next pair of forceps is applied upon the uterine artery and should include all the tissues to the vagina. It can be put on from above down or from below upward, as is most convenient. It passes between the uterus and the forceps on the ovarian artery. The uterine

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forceps are put on *after* the ovarian. The uterus is cut away. The two forceps are dropped and allowed to hang loosely. The left half of the uterus is drawn down and the adnexa delivered, after which the forceps are applied as they were upon the right side. This completes the third stage.

Inspection and Dressing.—After introducing into the pelvis several gauze pads secured by stout strings, a long Jackson retractor is made to hold down the perineum and vagina, and

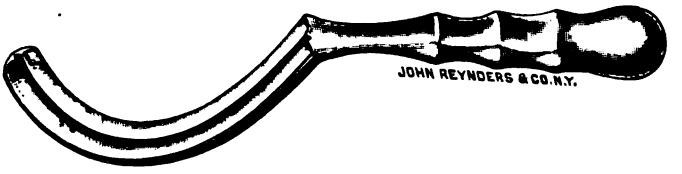


FIG. 9.—Pryor's retracting director.

the patient is thrown head down, not far enough to allow the pelvic filth to escape above the pelvic brim. With a trowel I lift up the bladder and carefully inspect the stumps. All being dry, I place a piece of gauze between each set of forceps and the vaginal wall. The pads are withdrawn. Pieces of gauze are placed between the sets of forceps so as to completely fill the vagina. If pressure is needed to secure aberrant vessels (common in fibroid cases), this is secured by pressing from side

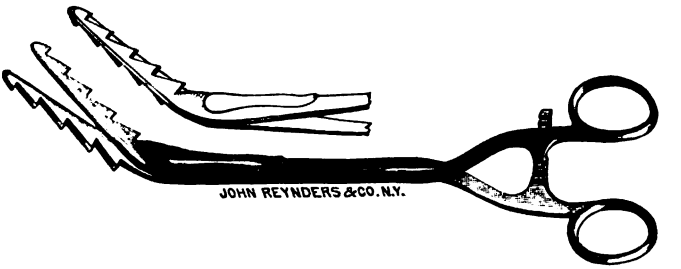


FIG. 10.—Pryor's intrauterine traction forceps.

to side with Péan's long retractor. This dressing I term the "Pelvic-Mikulicz."

The sphincter ani is dilated to lessen spasm of the levator ani, its opposing muscle. I have found that unless this is done the bruised levator ani will cause much spasmodic pain. Gases and stool are also easily passed through the dilated sphincter. A self-retaining catheter is introduced and gauze wrapped around the forceps (Fig. 8). The patient is put to bed.

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Conducted in this manner, we complete most operations in twenty minutes and with little chloroform. The narcosis is partial. Bleeding is not more active than in the original French operation, and the operation is rendered perfectly simple by the method of gaining space *between* the two halves of the uterus rather than above or below the undivided organ.

The dressing applied needs little explanation. Inasmuch as this operation seeks the extraperitoneal treatment of stumps which will slough, I desire that rest of the parts and firm support of the stumps which will prevent retraction into the pelvis of the sloughs after the forceps are removed. I also seek to apply enough dressing to catch all discharges that may be produced in the week or ten days between the operation and first dressing.

The dressing does not project above the line of contact between the rectum and bladder, and is thus extraperitoneal.

121 EAST THIRTY-EIGHTH STREET.

A CASE OF EXTRAUTERINE GESTATION, WITH A STUDY OF THE ORIGIN OF THE SYNCYTIUM *

BY

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AND

MR. L. T. SALMON,

Class of 1898, University of Pennsylvania Medical School.

(With six illustrations.)

IN the valedictory presidential address on the subject of extrauterine gestation, delivered before the British Gynecological Society in January of the present year, Prof. Mayo Robson [1] says:

"The subject of ectopic pregnancy is of no less scientific than practical importance, for not only does it offer several problems difficult of explanation, but, from its frequent occurrence and its alarming and dangerous symptoms, its study becomes of the first importance both to the general practitioner and to the operating surgeon."

* Read before the Pathological Society of Philadelphia, March 24, 1898.

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Reviewing the literature of the subject, the first case of extrauterine pregnancy we find recorded is that described in the eleventh century by Albucasis,[3] an Arabian physician living in Spain, in which he noted parts of the fetus being discharged through the abdominal wall. During the sixteenth century still other cases were described in a vague and indefinite way, but it was not until the seventeenth century that reports of these cases were made with any accuracy. Riolanus[5] in 1604, Mercerus[4] in 1614, and St. Maurice[6] in 1682 each give accurate descriptions of undoubted tubal gestations. During this century a clear distinction between primary and secondary abdominal pregnancy was made, but it was not until after the year 1800 that the varied, and in some cases astonishing, classifications began to spring into existence.

Authentic cases of uterine occurring at the same time with extrauterine pregnancy are made by Von Haller,[8] Buchner,[7] Bartholin,[8] and several others during this early period.

In 1714 Ebersbach[9] described a case of "bladder pregnancy" in which he claimed, upon postmortem examination, to have found the fetus in the bladder and the placenta fastened to the interior of the bladder wall. In the same category with this report may be placed that of Noel,[10] a French physician of Lorraine, in which he described a "vaginal pregnancy" which he had attended in 1765. Among the early writers on extrauterine pregnancy primary abdominal and ovarian pregnancies were always included.

It would require too much time and be uninteresting to describe the multifarious divisions and subdivisions, such as utero-tubal, utero-tubo-abdominal, interstitial tubo-uterine, etc., into which the subject of extrauterine pregnancy was divided by the early classifications.

It was Dezeimeris[11] who first brought some order out of the chaos of ideas on this subject and propounded in 1837 his well-known classification in which he describes only eight varieties.

Josephi,[12] in 1784, was among the first to ridicule the idea of a possible "bladder pregnancy." Hinze,[13] in 1791, first challenged the existence of a primary abdominal pregnancy, and Velpeau,[14] in 1835, denied the possibility of a primary ovarian conception.

The modern views upon extrauterine gestation may be said to be based largely upon the work of Lawson Tait,[15] extending between the years 1873 and 1889, the final conclusions of which were published in a classical chapter on the subject in

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his text book of the latter date. Mr. Tait clearly demonstrated the overwhelming importance of primary tubal pregnancy, and the various secondary conditions which might result from rupture of the tube or from its escape through the abdominal ostium.

Tait maintains that the existence of a primary abdominal pregnancy has never been established, and, while admitting the possibility of ovarian pregnancy upon theoretical ground, states his belief that it has never taken place.

In his last article on extrauterine gestation, published in 1897, Bland Sutton [16] disposes of the subject of ovarian pregnancy in the following words: "Until some specimen is forthcoming in which an early embryo, in its membranes, can be demonstrated in a sac inside the ovary, we need not trouble ourselves to discuss ovarian pregnancy."

After a careful examination of the reported cases of primary abdominal and ovarian pregnancy, we incline to the opinion that all varieties of extrauterine gestation, without any exception, undergo their primary development within the Fallopian tube.

Accepting, then, the tube as the primary seat of development of extrauterine pregnancy, the classification of Webster,[17] which divides all cases according to the point of attachment of the ovum within the tube, into *ampullar*, *interstitial*, and *infundibular*, seems most rational and simple.

Etiology.—The study of the *cause* which brings about the development of the ovum outside the uterine cavity is of great interest.

From the earliest times it has been customary to ascribe extrauterine development to such causes as:

1. "Mechanical interference with the passage of the ovum to the uterus"—as, for example, polypi in the tube lumen, external constricting bands, pressure from external tumors, etc.

2. To interference with peristaltic action, such as adhesions of the tube to neighboring organs, and inflammatory thickening of the tube wall.

3. And, again, to endosalpingitis, which destroys the ciliary action of the epithelial cells lining the mucosa.

In discussing this question Sutton [16] says that "the causes of tubal pregnancy are unknown, and our ignorance will continue until we have some trustworthy information concerning the situation in the genital passage where ovum and spermatozoa meet." He, however, believes that the normal union

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takes place in the uterus, that impregnation in the tube is accidental, and that in these cases tubal gestation results.

Tait[18] also holds the view that the ovum normally becomes fertilized in the cavity of the uterus, and that when impregnation occurs the ovum immediately implants itself upon the adjacent mucous membrane.

But Hertwig[19] and Minot[19] agree that in the case of placental mammals impregnation takes place in the oviduct near its outer third. In regard to the human species Minot says: "Nothing positive is known as to the site of impregnation in man, but there is no reason to suppose, as is unfortunately often done, that the site is variable or different from that in other mammalia."

Certainly no evidence exists to show that the normal impregnation does not take place in the tube, whereas we have no rational ground for assuming that man differs in this respect from other placental mammalia.

Martin,[20] Webster,[21] Veit,[22] and Sutton[23] have each reported cases where the inner end of the tube was found to be entirely normal. The case here presented also shows the same fact.

The view of Berry Hart[24] and Lawson Tait, "that the ovum can only implant itself on a connective tissue from which the epithelium has been removed," cannot be accepted.

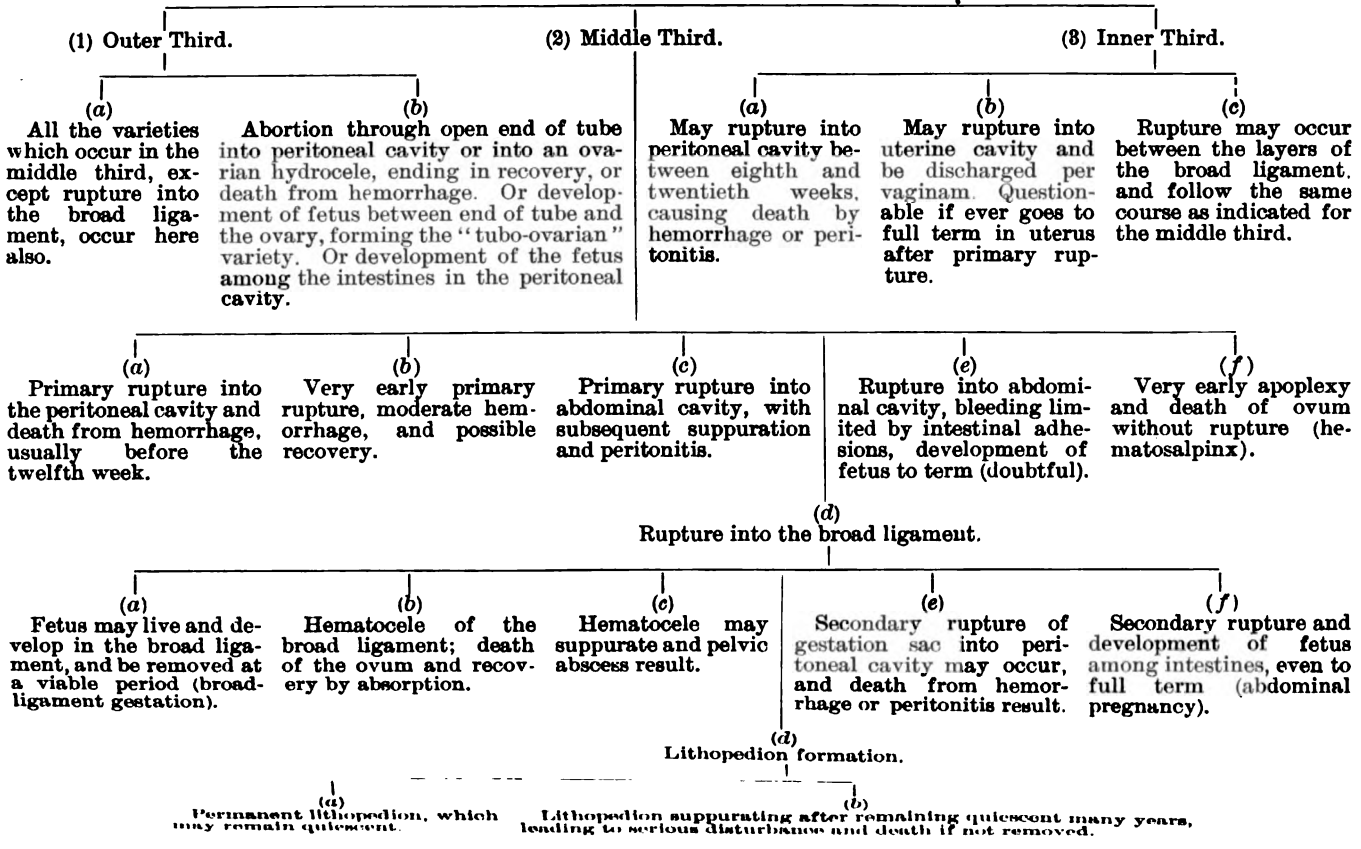
Martin[20] and Sutton[16] agree that the changes found in the tubal mucosa occur subsequent to impregnation. Webster[21] holds that for the retention of the ovum at a given point a decidual reaction must be present in the mucous membrane, and advances the hypothesis that "for the formation of a tubal gestation we must have a decidual reaction already present within the tube below the point where the ovum is impregnated, and that some cause must be in operation to detain it for a certain length of time against this mucosa until the ovum shall have become fastened."

The study of the present case, however, gives evidence entirely against the acceptance of such an hypothesis as the latter. In spite of the numerous theories advanced, none has proved capable of application in all cases, and the problem of the etiology of extrauterine gestation remains still unsolved.

The clinical cause of the various possible developments following the detention of the impregnated ovum in the different portions of the tube furnishes a most interesting study, but its discussion is not within the scope of our present paper. The accompanying schema, however (page 744), which follows in idea that presented by Prof. Robson,[1] furnishes an outline.

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Schema of Ectopic Gestation.



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The history of the present case, which we wish to present, is as follows:

Miss X., white, 36 years old and unmarried, was seized suddenly with severe pains in the lower abdomen while dressing on the morning of May 26, 1897. At the time of attack the pain was sudden in onset, excruciating in character, and radiated downward from the left ovarian region toward the thigh.

Her menstrual history had extended over a period of twenty-one years, and had always been regular up to the time of the present attack, except that since the last menstruation there had been a slight bloody discharge scarcely equal in quantity to a normal menstrual flow.

A physician was summoned at once. When the patient was first seen the temperature was 96¼°, the pulse rapid and feeble, the skin cold and clammy, and the mucous membranes blanched. Under appropriate treatment the woman slowly reacted.

Upon examination toward evening a slight abdominal distension was found, with universal abdominal tenderness and special sensitiveness over the left ovarian region. This special point of tenderness was ascribed by the patient to an old inguinal hernia. The temperature at this time was 99⅘° and the pulse 90. On the following morning the symptoms were those of general peritonitis, with a temperature of 102⅘° and pulse of 140.

Palliative treatment was followed during the next four days, but, as the symptoms did not improve and the condition of the patient grew steadily worse, an operation was performed on May 31 for a supposed ruptured appendix.

On opening the abdomen large quantities of dark blood gushed forth.

The appendix was immediately delivered and found apparently normal. Rapid, systematic search was then made over the intestines, but no bleeding point discovered. The entire peritoneal covering of the large and small intestines was congested and inflamed, and a few spots of lymph deposit scattered over the surface. Further search revealed the left ovary encased in a firm clot as large as a hen's egg, but active bleeding had ceased.

Semi-coagulated blood filled Douglas' pouch. This was quickly flushed out, the bleeding mass rapidly removed. and the abdomen closed; but no fetus was found.

At the time of operation it was supposed that a ruptured ovary had been removed and that the tube had been left in

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position. The operation unfortunately failed to save the patient's life, and she died three days later of peritonitis.

Pathological Examination.—The specimen, which has been preserved in alcohol, is about half the size of a normal ovary and measures seven-eighths of an inch in length, five-eighths of an inch in thickness, and three-quarters of an inch in width. From one end extends a narrow band of tissue, which becomes rapidly attenuated, and to which is tied a strand of catgut by which the specimen has been suspended in the alcohol.

Upon one lateral surface, at right angles to the long axis,



FIG. 1.—Showing appearance of the entire specimen after sections had been removed from the gestation product. Uterine end of the tube is above.

a tear appears, extending nearly three-quarters of the way around the circumference of the specimen. This rupture measures one-third of an inch in width and three-sixteenths of an inch in depth. The tissue on the bottom and sides of the tear is granular in appearance and is the color of clotted blood. Sections were cut, and microscopic examination was first made of the tissue from the walls of the tear. Chorion villi were found in abundance, and also a small area of ovarian stroma containing Graafian follicles. When this was found the photograph

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here presented (see Fig. 1) was made of the specimen as a whole, and the mass then cut up into eight pieces, at right angles to the long diameter, and microscopic sections made from every portion of it.

Microscopic Examination.—On examining first the small elongated attachment, to which the catgut was fastened, we find a cross-section of the Fallopian tube (see Fig. 2) as it should



FIG. 2.—Section from extremity of the specimen, showing the inner end of normal tube in cross-section.

appear normally at the isthmus. The branching fringes of the mucous membrane project into the lumen of the tube, the ciliated columnar epithelium is preserved, no inflammation is seen, and the tube is absolutely normal in every respect. This point is of special interest in that it shows that the retention of the impregnated ovum in the present case was not due to any obstruction to its free passage into the uterine cavity or to an inflamed condition of the tubal mucosa.

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Examining now serial sections as they pass from the normal tube to the centre of the mass, the first deviation appears as a fibrinous coagulum of blood in the centre of the lumen. But in this section the mucous lining of the tube is still absolutely normal (see Fig. 3). As we pass on, the fibrinous coagulum grows larger and larger, dilating the lumen and stretching the tube. The branching fringes become shorter and fewer in number, until they disappear altogether. The epithelium, at



FIG. 3.—First appearance of gestation product in tube lumen; folds in the mucous membrane beginning to disappear; columnar epithelium still normal.

first columnar, becomes gradually cuboidal, then a granular layer appears, and finally a fine band that takes the stain more intensely than the other tissue, but in which no cellular outlines can be distinguished (see Fig. 4). In places the traces of epithelium are lost altogether.

No indication of inflammation is present in the tissue below

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the epithelium, and all the changes present give indication of being the direct *result* of, and not the *cause* of, the tubal gestation.

The peritoneal covering of the tube is greatly thickened and inflamed, due, no doubt, to the peritonitis before the operation was performed. The tubal wall, at first normal, grows gradually thinner as we reach the centre of the mass, until the

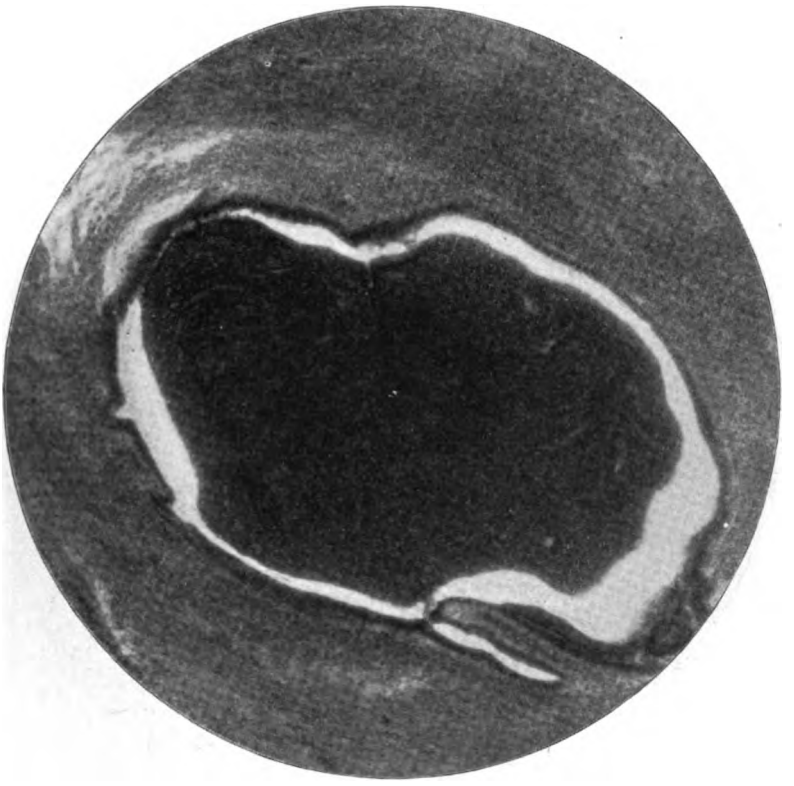


FIG. 4.—Tube lumen considerably dilated; folds of the mucous membrane almost entirely removed; columnar epithelium for the most part transformed into low cuboidal epithelium.

muscular bundles finally entirely disappear and the whole wall is transformed into a narrow fibrous band.

Webster claims to have discovered portions of a tubal decidua vera in all cases of an early date examined. In the present specimens we are unable to find any trace of decidual cells in the general tubal mucosa.

Where the chorion villi come in direct contact with the tube

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wall we do find well-developed masses of decidual cells, which in the uterus would constitute the decidua serotina. But no decidua reflexa, such as is described by Webster as existing in a specimen in the Museum of the Royal College of Surgeons in Edinburgh, can be found in our sections.

A preparation made from the quadrant situated on the side opposite the point of tubal attachment shows bands of tubal

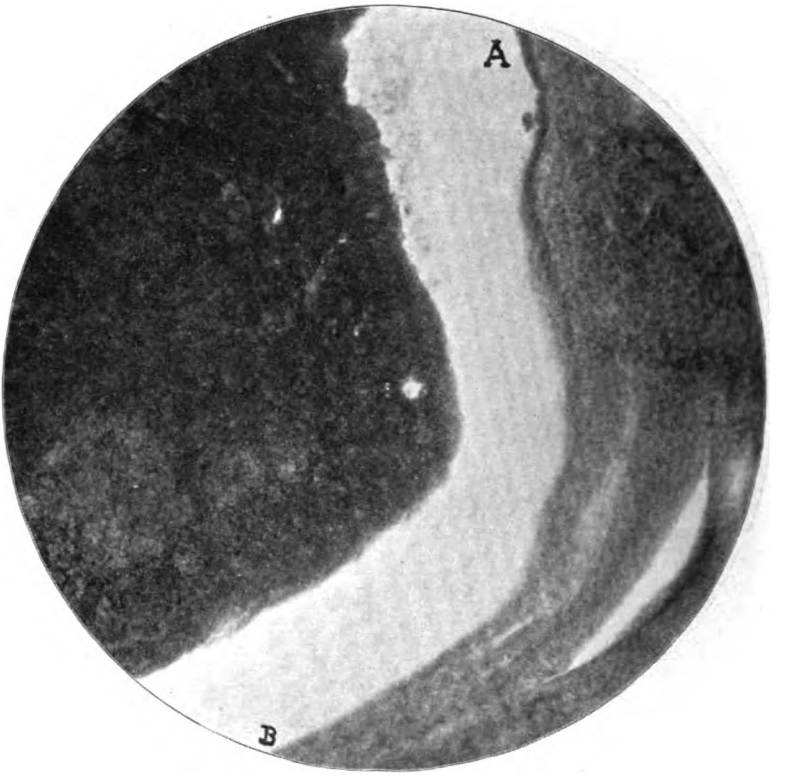


FIG. 5.—Tube lumen greatly dilated; folds of mucosa now entirely removed; epithelium in parts (A) still distinguishable, in other parts (B) entirely obliterated.

decidua serotina, in some cases in contact with the ends of fixing villi, in other cases separated from them by a considerable interval—*i.e.*, the decidual cells form the boundary, toward the tubal wall, of the intervillous space. In every case the *villi* are covered by the syncytial layer, but in no case is the *decidua*, which forms the boundary on the side of the maternal structure, covered by this thin syncytial band.

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In one case where a fixing villus abuts against the decidual tissue, the syncytial and Langhans cells with which the villus is covered have been absorbed at the surface of contact.

The *origin* of the syncytial layer, which we define as the outer investing membrane of the chorion villi, made up of a homogeneous protoplasm in which are found free nuclei with no individual cell body, is a much-disputed point. The

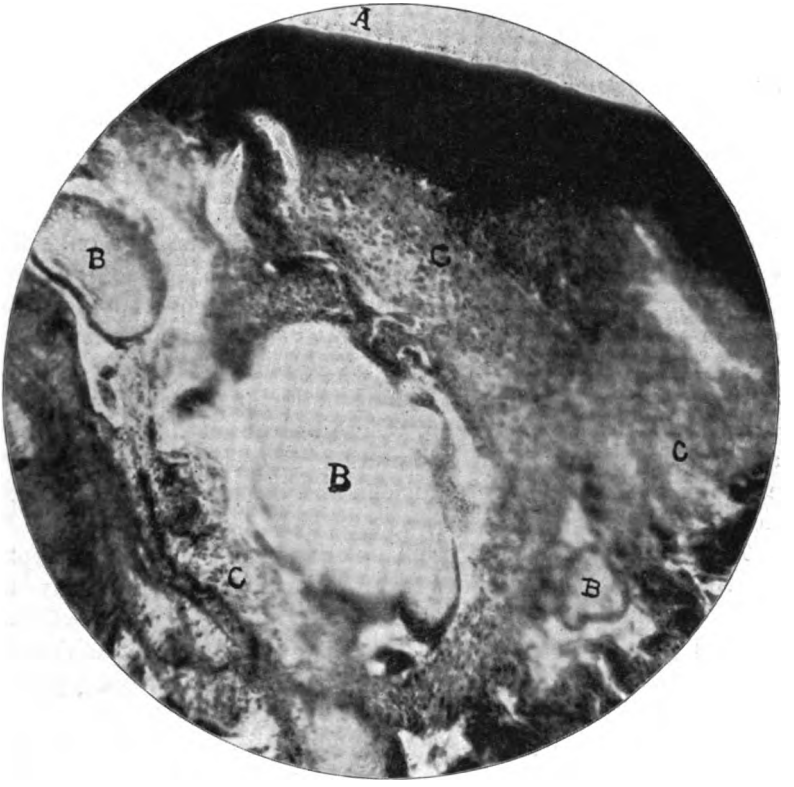


FIG. 6.—Tubal wall reduced to a thin fibrous band (A) surrounding gestation product containing chorion villi (B) in cross-section, and tubal decidual cells (C).

question at issue is as to whether this syncytial membrane is of fetal or maternal origin.

When considered as of maternal origin it is supposed to be derived either from the single layer of epithelial cells covering the surface of the endometrium, or from the tubal mucosa, or to be derived from the endothelial lining of the capillaries, which, according to Minot and Hertwig, dilate enormously to fill the intervillous blood spaces.

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When considered as of fetal origin the syncytium is assumed to be a direct derivation of the fetal ectoderm.

From a careful study of the villi in the case at hand, which certainly must be at one of the earliest periods of development obtainable, we are led to draw the following conclusions:

Firstly. That the syncytial cells are not, as claimed by Ruge,[11] derived from the superficial epithelial cells of the endometrium, as of course they could not be in the present case, since the villi have never been within the cavity of the uterus.

Secondly. That the syncytial cells are not derived from the superficial epithelial cells of the tubal mucosa, since the small villous buds, which cannot possibly have come in contact with the tubal mucosa, show the syncytial layer in greatest perfection.

A further argument is that in several areas where the fixing villi are seen in contact with the tubal decidua, not only is there no trace of remaining epithelium on the surface of the decidual tissue, but the syncytial layer which covered the end of the villus is seen to be absorbed over the area of contact, the syncytial cells in most of the specimens coming to an abrupt termination where they adjoin decidual tissue.

In one particular specimen, where the union between villus and decidua has evidently just taken place, the syncytial covering of the end of the villus can still be seen as a faint line, not quite yet absorbed.

Thirdly. That it would seem entirely unreasonable to accept the theory that the syncytial layer covering the villi is derived from the endothelial coat of the maternal capillaries, which expand into the intervillous space and thus form the blood sinuses into which the villi dip; for it would appear illogical to assume that this endothelial layer should immediately so fuse with the villous surfaces that it becomes an inseparable part of it ever after, while on the maternal side of the cavernous blood spaces no trace of it should remain, even at the point of contact with the villi. Moreover, as the placenta proper does not form until the third month of pregnancy, and as in the specimens under examination there is no free blood present about the villi, it is evident that the placenta has not yet been formed and that the intervillous space has not yet been occupied by the expanded capillaries; therefore it is impossible that an endothelial covering should have been cast over the villi in the present case. Excluding the superficial epithelium of the mucosa and the endothelial lining of the maternal capillaries as

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the possible origin of the syncytium, we are forced then to accept the remaining hypothesis that the syncytial cells are of fetal origin, probably derived directly from the fetal ectoderm.

This point of apparent insignificance as to the origin of the syncytial cells becomes of great interest and importance in considering the origin of chorio-epithelioma—or "deciduoma malignum," by which name it was first described and is perhaps still most generally known—for it is now pretty generally accepted that these neoplasms have their origin in the syncytial cells.

To sum up briefly, we come to the conclusions:

First. That in the present case the changes in the tubal mucous membrane were secondary to, and the result of, the detention of the impregnated ovum within the tube.

Second. That no tubal decidua vera was formed in the case before us.

Third. That the syncytial layer is not derived from the superficial cells of the endometrium or tubal mucosa.

Fourth. That the syncytial cells are not derived from the endothelial lining of the maternal capillaries; and

Lastly. That since the syncytial cells are not of maternal origin, they must be derived from the fetus, and probably directly from the fetal ectoderm.

112 South Eighteenth street.

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A CLINICAL CONTRIBUTION TO TUBAL PREGNANCY.

BY

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THE patient, Mrs. C. C., æt. 33 years, married nine years, had one child eight years previously; normal labor; menstruation began at the twelfth year and had always been regular at intervals of four weeks until 1894, when menstruation became irregular, at intervals varying from two to three weeks, and a prolonged flow, continuing from eight to nine days. She was submitted to a curettage for this by another physician, and in 1896 I saw her in consultation the first time. According to my notes the examination showed a freely movable, normal size uterus and normal adnexa; no pain in the pelvis. In addition to the irregular menstruation she complained of having had dysmenorrhea for the past two years. She was again curetted, and the scrapings showed a hyperplastic endometritis. After a few weeks of local treatment she was entirely cured, and remained regular in monthly intervals, without dysmenorrhea, the flow lasting from three to four days.

On Monday, April 4, 1898, I was again consulted, the following statement being elicited: The patient had been perfectly well until two weeks previously, when she commenced to bleed slightly at irregular intervals, but she was absolutely free from pain. Remembering, however, her previous bleedings, she thought that by timely local treatment another curetting could be avoided. The color of the blood was dark and slightly tenacious. This aroused momentary suspicion of ectopic gestation, which was, however, dispelled by receiving such positive statement of the entire absence of pain, and that at no time

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had she gone even one day over her regular time of menstruation; also, that upon examination the uterus was found to be freely movable, without tenderness, and not enlarged. On the right side of the uterus there was slight tenderness to touch in the scar tissue from a cervical tear which had been repaired by me a year previously, for which reason no attempt was made to palpate the adnexa with exactness on this side; on the left side the tube and ovary were normal. I therefore concluded that Mrs. C. had a return of the endometritis, and used a galvanic current, the anode intrauterine, strength of current 50 milampères, the cathode covering the entire hypogastrium; duration of the current, ten minutes. The patient returned for treatment on Friday, April 8, and while waiting for her turn to receive my attention she was suddenly seized with pain in the abdomen and fainted. I was hastily summoned, and found her with a small, rapid pulse, somewhat anemic, and in clammy perspiration; nausea, retching, and some vomiting. She was transferred to another room and placed on a bed; watching her for a few moments, and finding that the anemia increased and that the pulse was getting smaller, I concluded that she was suffering from an internal hemorrhage. Her husband and family physician were immediately summoned. Half an hour later she was in deep collapse and pulseless. Upon making a bimanual examination some pain was evinced when making pressure upon the lower abdomen, despite the collapse. The uterus and left Fallopian tube and ovary showed precisely the same condition as on the previous examination on April 4; the right tube—which, owing to the collapse, I managed to palpate despite the blood already in the abdomen—was somewhat enlarged. The diagnosis of right tubal gestation with rupture was made. The patient was transferred as rapidly as possible to the hospital by the family physician, Dr. Louis Peiser, after he had taken the precaution to administer a large dose of strychnia subcutaneously, which benefited her greatly. The doctor's diagnosis of the condition also corroborated the opinion which I had expressed. Upon arrival at the institution she was, however, again in profound collapse and absolutely pulseless. To Drs. Erdman and Tucker, who happened to be present at the time, I am greatly indebted for the valuable aid they gave me by administering oxygen and the infusion of large quantities of saline solution, while I, with the assistance of my house surgeon, rapidly opened the abdomen after bandaging the extremities.

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The bleeding tube, *which was not prolapsed and non-adherent*, was readily grasped and removed. I am unable to say how much blood was in the abdomen, but it was the largest quantity I had ever seen; certainly not less than three pints were removed, and nearly another pint was left in the abdomen because the condition of the patient was such that the operation had to be terminated with the utmost rapidity.

I report this case, not because the tube ruptured at an early stage of gestation (from the embryo found in the tube, the pregnancy had progressed between the third and fourth week), nor because the quantity of blood effused was so large, but because I want to refute most positively the idea prevailing in the minds of many that there are invariably present periodic attacks of characteristic pains in patients who have a tubal gestation. I have personally seen three cases who had no characteristic pain or any other pain until a moment or two prior to the rupture, and in whom the symptoms were similar to those in the case narrated, and who were operated upon during the existence of shock, but, unfortunately, with fatal termination.

Second, for the purpose of retracting a statement made by me on a previous occasion, that I did not believe it possible to save a patient operated upon in profound collapse or shock. This instance certainly was one of the most profound shock; in fact, the patient was nearly moribund. My reasons, however, for operating in this particular case under such gloomy circumstances, especially with my previous experience, were that but a very short time had elapsed since the rupture took place, to my personal knowledge, the patient having come into my waiting room feeling well, without a particle of pain indicating any form of pelvic trouble; and because it was evident that it would be folly to hope for a recovery from the shock or a rally from the collapse, because her condition was getting worse as time progressed. Her integuments were completely blanched, lips of a very pale grayish purple, and the sensorium markedly blunted.

This instance also illustrates the unreliability of the galvanic current in such cases. The embryo was not killed or the rupture would not have taken place. Although the current was not used for this purpose—the diagnosis not having been made prior to the rupture, for the reasons previously mentioned—yet the strength applied was sufficient, and I do not believe that it made any practical difference whether the pole was applied

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intrauterine or whether a clay-ball electrode had been placed in the vault of the vagina, so long as the external electrode covered the entire area. If shocks from a galvanic current of such strength are to be used, the treatment is so heroic that a patient ought to be anesthetized; besides, I doubt if such course would have been more efficient than the current as employed.

I have on a previous occasion, before the Academy of Medicine, stated that the characteristic features of ectopic gestation are the cessation of the normal menstrual period for a greater or lesser period of time; the occurrence of intermittent cramp-like pains in the lower abdomen, most marked on the side affected and then radiating over the whole abdomen like an attack of colic; a discharge of tenacious, chocolate-colored blood, sometimes only light spotting; moderate enlargement of the uterus, about to such extent as we find it in patients with chronic metritis; the existence of a mass to either side of the uterus, intimately in connection with it and frequently traceable into the retrouterine space; it usually has indefinite outlines, with a feeling similar to a pyosalpinx surrounded by a perimetritic exudate. The breasts usually contain colostrum. Often shreds of decidua are discharged. Anemia is present in all cases if rupture has taken place, depending in intensity upon the amount of blood which has escaped into the peritoneal cavity. These, however, are the symptoms of a so-called "school case," and I have no doubt but what the diagnosis of a patient presenting all of these symptoms will be made by nearly every practitioner of medicine. Unfortunately the symptoms are not always so clear, and I therefore cannot urge too strongly the extreme care with which we must consider every case presenting perhaps only one, two, or three of the signs enumerated. I especially desire to call attention to the complete *absence of pain in some instances*, except for a few minutes prior to the first and probably fatal rupture.

The characteristic intermittent, cramp-like pains are present in all cases which have a partial rupture and in cases of tubal abortion, but I seriously doubt their existence in all such instances as I have given a typical example of, who in a very early stage of gestation have an extensive rupture.

The former are, however, the cases of most frequent occurrence, which accounts for the formation of intraperitoneal pelvic hematocele and the spontaneous cure of a considerable number of patients with extrauterine pregnancy. The blood lost, not being too great in quantity, coagulates in the cul-de-

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sac of Douglas and is walled off or encapsulated. We know from experience that a goodly number of such pelvic hematoceles become absorbed with proper care of the patient. I am aware that the existence of intraperitoneal hematocele is denied by some authors, yet I have been enabled to prove beyond doubt by abdominal operation that it does occur. I do not touch upon the extraperitoneal or broad-ligament form of hematocele, because that variety is not questioned by any one and is the only form supposed to be possible or usual.

Before making my position clear between the operative interference per abdomen and per vaginam, it may not be amiss to cite another interesting case of this deplorable form of pregnancy. On March 21, 1896, I operated on Mrs. J., a patient of Dr. Frank, for ruptured tubal gestation, and the same patient on September 15, 1897, gave me an opportunity to corroborate a similar diagnosis by another operation, the pregnancy having taken place about fifteen months after her first operation. At the time of the first operation I remarked that the non-impregnated tube was in a condition of catarrhal salpingitis, so far as inspection indicated it, yet I did not consider it serious and therefore left it *in situ*. It is an instance of proof, however, that mild inflammation of the Fallopian tubes predisposes to tubal pregnancy. The second time, after confirming the diagnosis by vaginal celiotomy, I did a vaginal hystero-salpingo-oöphorectomy in preference to another abdominal operation, because of the uselessness of the uterus after removal of the remaining appendage, and because convalescence after a vaginal operation is usually more rapid. An interesting feature in addition to the second abnormal pregnancy in this case is that the patient had an intestinal obstruction following the operation, which was relieved by the constant application of enemata for a long time (over two hours).

At the end of the fourth day she had a rapid and very feeble pulse, vomiting of a biliary fluid which at times was mixed with ejecta having the appearance and odor of feces, and a greatly distended abdomen, which was very sensitive, especially about the epigastrium. This, with a positive denial of flatus having escaped, seemed to me to make the correctness of the diagnosis beyond doubt. I had just completed my arrangements for opening the abdomen, believing that the patient had an intestinal obstruction from adhesions which I could not locate nor relieve from the vaginal opening, when soon after the first flatus escaped spontaneously. Within five minutes the entire

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condition of the patient had changed as if by magic, and from this on convalescence was uninterrupted. I believe that it was an obstruction of the intestine rather than paralysis. In favor of the existence of an obstruction was the fact that only a moderate quantity of water could be injected into the bowel and that it was returned without contamination with feces; whereas soon after flatus had passed the patient began to have copious movements. With intestinal paralysis the return enema is contaminated with feces, and usually larger quantities of fluid can be injected into the bowel.

A few words as to the treatment of tubal pregnancy by the abdominal *versus* the vaginal route. From the communications addressed to me on this question it appears that my views are not clearly understood by my colleagues. The vaginal route I advise only when the tube has not ruptured, or if the patient has had one tube removed at some previous operation, as was the case in my instance of repeated tubal gestation, but then I commend the radical operation.

If rupture has taken place I would most earnestly advise that preference be given to the abdominal route, unless there is but one appendage in the pelvis, as in the case cited above. Recently I attempted to remove an impregnated Fallopian tube per vaginam which had ruptured, from a patient seen in consultation with Dr. Robinsohn, but was compelled to open the abdomen to separate the adhesions which held the tube high up in the pelvic cavity. I could, of course, have removed the uterus with tube from below and thereby made it a safe operation so far as the life of the patient was concerned, but this certainly would not have been consistent with conservative surgery. I lost about twenty minutes by my unsuccessful attempts in this case, and although it did not make any difference in the recovery of the patient in this instance, there are many cases in which a difference of five minutes would be very important. I have personally operated seventy-three times for extrauterine pregnancy under various circumstances, and have been able to make many observations which may be of advantage. It is my conviction that a vaginal celiotomy for *ruptured* tubal gestation, a procedure which I formerly favored, is altogether unsatisfactory. One is too uncertain as to what he is doing or what the condition is within the abdomen when this is filled with blood. The drainage through a vaginal incision is insufficient, and I am not at all satisfied as to the wisdom of allowing large quantities of clotted blood to remain to be

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absorbed by the peritoneum; small clots of blood, of course, do not make any difference—in fact, I have not for years attempted to clean out all the blood, being satisfied with that which could be readily removed; I have invariably noted in such cases an absorption fever beginning within twenty-four hours and continuing from one to three or four days.

To wash out the abdomen from below with a tube carried high up into the abdominal cavity is very tedious, and the clots do not readily come away; besides more time is consumed than by performance of the operation per abdomen.

The treatment of pelvic hematocele, which is usually due to ruptured tubal pregnancy, must depend entirely upon the symptoms produced by it. If no signs of suppuration present themselves and no pressure symptoms are produced, the patient can be kept at rest, with perhaps an ice bag over the lower abdomen if pain from local peritonitis is present, and the case left to Nature for absorption; if, however, any indications of a character unfavorable to resorption of the extravasated blood exist, no time should be lost, but the sac should be opened in full extent and thoroughly cleansed and the cavity packed with nosophen or sterile gauze—loose if fresh bleeding is not present from some source, otherwise the first packing should be made quite tight. The dressings should be changed as often as may be necessary, each time putting in less gauze. I prefer to let the first packing remain two days and to change the dressing every day subsequently.

The use of drainage tubes in such cases is to be condemned, as is also the practice of making a small opening into the blood tumor. I have for some years made use of a Palmer dilator, with the points ground sharp, for the purpose of making the puncture; immediately this puncture is followed with a Bischoff rectal dilator, so as to gradually tear the opening to its full extent, which gives one room enough to introduce the entire hand into the cavity, if such should be found desirable, for the purpose of examination. The rule should be to treat all tubal pregnancies as malignant neoplasms. Once the diagnosis is made, they should be operated upon as soon as possible. And once more we must bear in mind that although as a rule ectopic pregnancy is not difficult to diagnose after rupture, we do occasionally meet with cases which do not show the symptoms rendering the recognition of the abnormality so easy, most prominent among which is the absence of pain until the time of extensive rupture, and the non-missing of a menstrual

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period. In this class reliance must be placed upon the sudden occurrence of extreme anemia with its associated symptoms, as depicted in the example cited. The presence of a tumor by the side of the uterus should in such cases not be expected, because in the cases seen by me the tube was non-adherent and not prolapsed, which condition accounts for the different aspect in these cases.

54 WEST FIFTY-FIRST STREET.

CYSTIC DEGENERATION OF THE CHORION VILLI WITH COINCIDENT CYSTIC TUMOR OF BOTH OVARIES.

BY

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VESICULAR or hydatidiform mole has always been looked upon as an interesting and not very frequent occurrence. This interest has recently been greatly augmented, since it has been found that the development of "deciduoma malignum" in a large number of cases has occurred in women from whom at some previous time a hydatidiform mole had been expelled or removed from the uterus.[1]

The histological structure, the ontological classification, and the etiology of vesicular mole have been the subject of many investigations and of many theories.

Velpeau[2] or Cruveilhier[3] is credited with being the first to express the opinion that the vesicles of vesicular mole were but distended villi of the chorion. Prior to this many and curious theories had been advanced, needing only mention, as that the vesicles were unfecundated ova or true hydatids of echinococcus.

Since Velpeau's (Cruveilhier's) statement was made it has never been doubted that the villi of the chorion give the basis for the cystic degeneration of the ovum, designated as vesicular or hydatidiform mole; but there existed and still exists a difference of opinion as to the anatomical classification and to the causes, immediate and remote, of this degeneration.

Noted observers (Merkel and Giese) * have considered vesi-

* Access could not be had to the original publications; the authors are quoted from text books and other essays.

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cular mole a "physiological hypertrophy of the chorion villi with secondary edema in consequence of inhibited formation of the placenta."

Virchow[4] demonstrated that the tissue of the chorion villus is the continuation of the Wharton jelly of the umbilical cord, and he declared the vesicular mole to be a true myxoma of the chorion—*i.e.*, an irritative hyperplastic formation in the myxomatous tissue of the villi.

Because of Virchow's great authority we find his view accepted almost universally in the different text books on obstetrics, yet it does not remain without opposition.

Storch[5] does not accept Virchow's view, but considers vesicular mole a hyperplasia of the connective tissue of the chorion villi with secondary cystoid degeneration. The same opinion, so far as the truly myxomatous nature is concerned, has been expressed in a few remarkable essays on vesicular degeneration of the chorion villi that have been published during the last few years.

Kehrer's[6] studies and observations have taught him that the chorion villi of the first few months of pregnancy have a characteristic appearance; he calls them "embryonic villi." After the third month of pregnancy the villi look differently; Kehrer names these "fetal villi." The form and appearance of the villi of vesicular mole are identical with the embryonic villi, while their histological structure is the same as that of the embryonic villi of the first month of pregnancy.

Kehrer therefore concludes that vesicular mole originates from the early embryonic villi of the chorion in this way, that these villi do not undergo the usual changes in form and structure which he considers normal to the third and following months, but continue to grow in their typical form and structure. Vesicular mole, therefore, is a hyperplasia with retention of the embryonic condition of the chorion villi. A strikingly characteristic feature is the active proliferation of the whole villi. In Kehrer's opinion epithelial covering and endochorion participate equally in this hyperplasia.

The most remarkable recent publication on vesicular mole is that of Marchand.[7] His researches deserve the more consideration since it was he who showed positively that the biological character of "deciduoma malignum" is that of an epithelioma and not of a sarcoma, and since, as stated before, there is a certain relation between vesicular mole and "epithelioma syncytio-ectodermale."

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Marchand had an opportunity to examine a vesicular mole adherent to the uterus. It would be leading too far to go into the details of this essay, which should be accessible to every one who is interested in scientific gynecological researches. He found that in the development of the mole not only the villi of the chorion but also the decidua serotina had undergone considerable changes.

These changes consisted in processes of degeneration and proliferation of the epithelium of the villi, both of the syncytium and of the cellular stratum (*Langhans'sche Zellschicht*). The degeneration was manifest through the formation of vacuoles, through hydropic changes, and through extensive necrosis. The proliferation consisted in "the production of many epithelial cells, which differed from the normal in the size of their nuclei and the dimension of their protoplasm. The immigration of these cells in large numbers into the serotina gives a peculiar appearance to the latter; the greatest importance of this cell proliferation is that it destroys the protecting fibrinous stratum, the compact stratum, and the spongy stratum of the decidua, and even neighboring parts of the muscular stratum; all this in a way which reminds us of the proliferation of a malignant epithelial neoplasm."

The pathological significance of vesicular mole is not that of a myxoma in the sense of Virchow's "Geschwulstlehre." Vesicular mole is the result of an irregular proliferation of the epithelial parts of the chorion, with hydropic swelling and consecutive necrosis, manifested especially in the larger vesicles. The superficial stratum of the stroma, that which is near the living epithelium, remains unchanged, but the inner parts become liquefied.

Ludwig Fränkel[8] examined a fatal case of neoplasm of the uterus where a vesicular mole had been removed two years before death. From his findings he felt justified in declaring positively that the neoplasm had originated in the epithelium of the chorion villi; he called it, therefore, "carcinoma." This interesting case induced him[9] to examine ten specimens of vesicular mole (detached from the uterus), in order to determine what relation might exist between vesicular mole and these malignant tumors of the uterus in cases where a hydatidiform mole had been previously expelled. He sums up his careful researches by saying that "free proliferations of the syncytium and of the underlying cellular stratum of the chorion villi are found in vesicular moles with great regularity."

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"These proliferations are identical, histologically, with the elements of the malignant tumors of the chorion villi, and probably also of the so-called 'deciduo-sarcoma.' It is highly probable that the malignant tumors of the chorion (and decidua), when preceded by vesicular mole, have their origin in such proliferations of retained nests of the vesicular mole."

Fränkel and Marchand, through their investigations, arrive at the conclusion that hydatidiform mole is not as harmless as it has been heretofore considered. Certainly not every vesicular mole is followed by the development of a malignant growth; undoubtedly it is frequently expelled or removed in its entirety, the woman remaining well and bearing children afterward. Whether in cases of vesicular mole a malignant tumor will develop or not we are unable to know; therefore it is wise to closely watch puerperæ after vesicular mole and to act promptly when symptoms arise. More light was recently thrown upon this highly interesting matter by Neumann,[10] who examined three cases of vesicular mole followed by "deciduoma malignum." In one of these cases a metastatic tumor had developed in the vagina during pregnancy. Neumann's histological results coincided with those obtained by Fränkel and Marchand as far as the epithelial proliferation and degeneration is concerned; but, besides this, he found that the development of the malignant tumor may begin at a time when the vesicular mole is still in utero; in these cases there were noticed most striking differences from ordinary vesicular mole in the histological structure, consisting mainly in the presence of large syncytial cells in the stroma of the villi. Neumann considers the presence of these cells in the stroma pathognomonic of "malignant" vesicular mole—*i.e.*, cases where a malignant growth will follow—and he recommends immediate extirpation of the uterus whenever these characteristic signs are found.

It remains to be proved whether Neumann's observations are of practical value or not.

As the result of the careful investigations of these scientists (Marchand, Fränkel, and Neumann) the ontological definition of cystic degeneration of the chorion villi has been definitely decided; we have to drop the theory of "myxoma," and have to accept that of proliferation and degeneration of the epithelial covering (and liquefaction of the stroma) of the chorion villi instead.

Aside from the histological researches we find in Marchand's publication interesting observations upon the etiology of vesic-

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ular mole; he undertakes to answer the question, "What causes the chorion villi to proliferate and degenerate in certain cases?" Many are the answers that have been given to this question—death of the fetus; nephritis, endometritis, syphilis of the mother, etc. Marchand quotes Hohl as saying that in vesicular mole there is implanted in the ovule, while still in the ovary, a tendency for proliferation and hypertrophy, with consecutive edema of its peripheral parts. Marchand himself considers the possibility of various causes, especially that of endometritis; he insists upon the influence of the maternal organism and the exclusion of the death of the fetus as a causative factor in producing a general cystic degeneration of the chorion villi. In his opinion "some influence may be exercised upon the ovule, while still in the ovary, from the maternal organism; certain pathological qualities may be thus acquired by the ovum; these pathological qualities may be made manifest during the development of the ovum in the uterus (and also in the tube)." He calls special attention to the fact that in some cases of hydatidiform mole cystic degeneration of the ovaries has been observed; he cites a number of such instances. It is certainly easily understood that an ovary with a tendency to neoplastic proliferation will produce ova of like propensities.

Kaltenbach[11] expresses views upon the etiology of vesicular mole similar to Marchand's, emphasizing the maternal influence in its production; he records the preservation of a specimen of vesicular mole in utero, with cystic tumors of both ovaries, in the clinical museum of the Halle University. In Neumann's case of metastatic tumor in the vagina, developed during pregnancy, the left ovary was found to be a tumor the size of an apple.

As a contribution supporting the opinion expressed by these authors (Hohl, Marchand) relative to the importance of cystic neoplasm of the ovaries as an etiological factor in producing vesicular mole, the following observation may be of interest. The clinical features, besides, were of such a nature that they alone would justify the publication of the case.

Mrs. M., age 28 years, has borne two children, two and four years ago respectively, in normal labor; has had no miscarriage, and always enjoyed good health. About four months ago she had her last flow. For some time a sero-sanguinolent discharge was observed. Patient felt sick at the same time, and still feels sick, differently from what she has experienced in former pregnancies; there is loss of appetite, sleeplessness and general

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malaise, absence of nausea or vomiting. For two weeks she has complained of occasional pain in her abdomen similar to labor pains.

Status, May 14, 1896, as found in consultation with Dr. Eidenmuller, her family physician: Patient is extremely nervous; no rise of temperature; pulse 120; skin dry; no edema; urine normal (Dr. Eidenmuller). The usual signs of pregnancy on breasts, abdomen, and vulva are not distinctly present. The abdomen is uniformly enlarged; a round mass can be felt above the pubes, reaching nearly midway to the umbilicus. The nervous condition of the patient rendered physical examination extremely difficult. Fetal parts could not be felt; heart beats were nowhere heard; vaginal cervix appeared soft, spongy; external os closed. The round mass above the pubes was distinctly mapped out as the uterus.

Relying upon the history of the case clearly pointing to pregnancy, and considering the impossibility of feeling fetal parts or to hear heart beats as due to the excited condition of the patient, we felt justified in proclaiming the case as one of normal pregnancy.

Status eight days later: Uterus much larger in all dimensions, reaching above the umbilicus. Even with relaxation of the abdominal walls under an anesthetic no fetal parts could be felt, no heart beats could be heard. Uterus presented a tense feeling. Vaginal examination showed the external os dilated sufficiently to admit the index finger, internal os closed. On the right side of the uterus, in the pelvic cavity, a fluctuating longitudinal mass was felt, not movable, with an apex pointing into the Douglas pouch; the upper end of it could not be reached. This mass was discovered the day of the second consultation by Dr. Eidenmuller. Patient was in the same restless condition; labor pains distinctly felt. We concluded that pregnancy was not progressing normally, that an effusion of blood must have occurred into the uterine cavity. The possibility of vesicular mole was also considered. Great difficulty was experienced in explaining the mass on the right side of the uterus; from its sudden appearance and absence of fever it seemed most probable that it contained blood, that it might be a hematoma under the broad ligament, possibly resulting from a coexisting ectopic gestation. Under all circumstances the patient appeared to be in a very critical condition and was therefore transported to the German Hospital.

There was a bloody discharge from the uterus. Tamponade

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of vagina and cervix was done in the evening, to dilate the cervix. Next morning the patient was etherized and placed upon the operating table in the lithotomy position. When the gauze was removed from the vagina and cervix two fingers could readily enter the uterine cavity, and the vesicular mole was at once discovered.

The whole cavity of the uterus was filled with the characteristic masses, which were loosely adherent to the endometrium, mixed with large effusions of old and fresh blood. The operation of manually emptying the uterus was accomplished with considerable hemorrhage, which stopped after hot-water irrigation and intrauterine tamponade with iodoform gauze, the uterus contracting firmly. Great care had been taken to clean the uterine cavity thoroughly.

When the uterus had been emptied and reduced in size, I turned my attention to the mass on the right side of the uterus, in order to find out what it might be. While I tried by bimanual examination to map it out it disappeared suddenly from under my hands, with exactly the feeling as if it had burst. Being under the impression that it contained blood, that its rupture meant intraperitoneal hemorrhage and possibly death to the much-enfeebled patient, I at once opened the abdomen in the linea alba.

I was prepared to find a great effusion of blood in the abdominal cavity, but instead of this I discovered on the right side an ovarian cystoma, longitudinal in shape, the size of a kidney, with a very long pedicle and with no adhesions. This exceedingly movable tumor had descended into the small pelvis and had been wedged in between the uterus and the pelvis. The pedicle was ligated and tumor removed. On the other side a similar tumor was found and removed. They were of the ordinary glandular type—cystoma proliferum glandulare.

On macroscopical examination no healthy ovarian tissue could be detected. No microscopic examination was made.

The abdomen was closed with through sutures. Patient made a good recovery, interrupted only by a small parametritic infiltration on the left side, which disappeared soon. When she left the hospital her uterus was small, movable, and has remained so since, the woman enjoying perfect health.

1018 SUTTER STREET.

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IRRIGATION WITH SALT SOLUTION AND OTHER FLUIDS IN SURGICAL PRACTICE.[1]

BY

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THERE exists a great divergence of opinion among surgeons as to the advisability of employing irrigation after abdominal section. While some prefer to irrigate after every operation as a routine procedure, the majority, perhaps, deem it necessary to do so only in those cases in which bloody or purulent fluid has escaped into the abdominal cavity after the removal of a mass, or in those cases in which considerable oozing from the separation of dense adhesions has taken place. It has been urged, with some justice, that where the escaped material is of a septic or of a malignant character, attempts to remove it by irrigation would in all probability spread it still further among the coils of the intestines and into other parts, especially in the upper portion of the abdominal cavity, whence it would be quite impossible to remove it by sponging. With this objection, which certainly demands consideration, I shall deal briefly a little later. Fortunately, in many cases in which pus

[1] Read before the Ohio State Medical Society, at Columbus, May 4, 1898.

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has been present the escaping fluid contains no virulent organisms, so that irrigation in such cases could hardly do any harm.

The materials used for the purpose of irrigation are plain hot water, sterile salt solution, and a variety of antiseptic fluids. In selecting such a fluid for irrigating the abdominal cavity we naturally look for one that promises the best possible results with a minimum possible amount of harm. Solutions containing germicidal drugs are open to the objection that they can never be of sufficient strength to destroy the septic material without producing local lesions or even general toxic effects from the absorption into the system of the chemical irritants which they contain. Experience has shown that the use of solutions of bichloride of mercury or of carbolic acid for irrigation of the peritoneal cavity must now be unhesitatingly condemned, not only on account of the local necrotic effects which are produced, but also because of the more or less grave symptoms of general intoxication which have been time and again observed. The experiments which have been made with dilute solutions of sublimate poured into the abdominal cavity of dogs are too well known to need any description here. Even in human beings autopsies have shown that patients have died with intestinal ulceration and peritonitis, or with lesions of the heart and kidneys of which there was no evidence before the operation.

Of the numerous milder antiseptic solutions, such as one-half to two per cent solutions of boric acid, Thiersch's solution of salicylic acid, and the like, it may be said that they possess no sufficient germicidal or inhibiting influence to justify their use.

Even plain hot water is said with reason to have a definite deleterious effect upon the tissues. It is a fact well known to microscopists that when fresh animal tissues are examined in plain water the cells are found to be seriously altered; and, as has been shown by repeated experiments, the red and white blood corpuscles are injured or completely broken down by its action.

In employing irrigation after abdominal operations we aim not only at cleansing the peritoneal cavity, but also at producing such a stimulus that the effects of shock from a severe and long operation may as far as possible be minimized. In normal salt solution we have an agent which offers these advantages and which thus far has never been shown to have any deleterious influence upon the tissues with which it is.

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brought in contact. The solution should be made to correspond in specific gravity very closely with the normal serum of the blood. Hence the term "normal" or "physiological" salt solution. It is prepared by dissolving six grammes (ninety grains) of chemically pure sodium chloride in each litre (thirty-three and a half ounces) of distilled water. The solution is then filtered into a clean flask which may hold about three litres, and which is then stoppered with a plug of non-absorbent cotton. In order to prevent the deposition of dust on the rim of the flask, the cotton plug is securely wrapped around with a gauze bandage. After being heated over a Bunsen flame until it boils, the solution is immediately transferred to an Arnold steam sterilizer already heated to 100° C., and allowed to remain there half an hour. The process is repeated on the two following days to insure thorough sterilization. It can be made up in quantities of a dozen flasks or more and kept until needed. When required for use two flasks are taken, one containing a cold and the other a hot solution. The contents of these are mixed in a sterilized glass graduate to which a thermometer is attached, and which holds from five hundred to one thousand cubic centimetres. The gauze and plug having been removed with due precautions, the cold salt solution is first poured into the jar, and then enough of the hot solution is added until the thermometer shows a temperature of from 43° C. (110° F.) to 48° C. (118° F.). The thermometer affords the only reliable means of testing the temperature of the water. The hand of the assistant or nurse supplies only a loose determination, and, what is more important still, is liable to contaminate the hitherto sterile solution. This is a detail of importance and the careful observance of it should be insisted upon. The solution is either poured into the abdominal cavity directly from the glass graduate or it can be siphoned through a glass or hard-rubber nozzle attached to a piece of tubing. Sometimes where more force is required a new Davidson syringe, previously sterilized in boiling soda solution, with a glass nozzle attached, may be employed. The Davidson syringe suitable for this purpose can be bought without the usual attachments for the irrigating end, and in this way the cost can be materially diminished. The glass nozzle can be readily attached to the end of the tube, and its lumen, being so much larger than that of the ordinary nozzle which comes with these syringes, will permit of a much freer flow through it, and besides a glass nozzle can be much more easily sterilized.

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In plastic operations irrigation is sometimes very necessary, and, in addition to other advantages afforded by it, the necessity of sponging is done away with. A constant stream can be employed and be so regulated as to keep the field of operation free from the blood that would otherwise obscure it and hamper the operator. Here again salt solution is superior to all other fluids. The solution is contained in a sterile glass jar fitted with a piece of rubber tubing which is provided with a hard-rubber stopcock, as devised by Edebohls, by which the current is controlled. Instead of a glass jar a fountain syringe may be employed. This can be easily rendered sterile by being boiled in soda solution or by being first soaked in a 1:40 solution of carbolic acid and then rinsed out with plain sterile water.

To meet the objection raised against irrigation, that it might disperse septic or malignant particles of material among the coils of the intestines, especially in the upper part of the abdominal cavity, it is safer, in every case in which the presence of such infective material is suspected, to first swab out the abdominal cavity with sterile gauze sponges and afterward employ irrigation.

I have used salt solution for irrigating the abdominal cavity for the past eight years, and for the past three years I have left in the abdominal cavity from three hundred cubic centimetres to several litres of salt solution at a temperature of 110° F. (43° C.) after every abdominal operation when not employing drainage. From observation of my cases I am convinced that this procedure undoubtedly diminishes the shock which generally follows a serious abdominal operation, and I also believe that it often diminishes the thirst of which patients so frequently complain after such operations. In those cases in which pus has escaped into the abdominal cavity I employ it according to the method recommended by Dr. John G. Clark; and in many cases in which large quantities of pus had escaped into the abdominal cavity, after the latter had been thoroughly cleansed, I have poured into the abdomen from five hundred to one thousand cubic centimetres of the salt solution and placed the patient in the position suggested by Dr. Clark in the treatment of this class of cases.

It has also been my practice for the past three years to use irrigations with salt solution during plastic operations. Since adopting this procedure I have seldom met with any macroscopical pus formation after plastic work, and I am led to believe that the irrigation with salt solution has in some way

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contributed to this result. In order to save time I am in the habit of sterilizing a sufficient quantity of salt in a test tube in the autoclave or Arnold steam sterilizer; I then place the necessary quantity in a sterile fountain syringe or glass vessel, and add the requisite amount of sterilized water.

The only objection to using this fluid during plastic operations would seem to be that it rather prevents the clotting of blood from the cut vessels. I do not think, however, that this disadvantage is of any great importance, as with a very little experience the operator will soon recognize what vessels it is necessary to ligate and how far pressure will suffice.

Normal salt solution is easily made. It is cheap, and it seems to me that its value as an irrigating fluid has up to this time been somewhat under-estimated and that its more general employment in surgical and gynecological operations is indicated. I certainly cannot recall to mind an instance in which its employment has done any harm in my hands. On the other hand, I cannot say this of other solutions which have been in vogue at various times, and I have come to the conclusion that salt solution possesses certain advantages of its own while being without the disadvantages belonging to other fluids used for irrigation.

1342 EUCLID AVENUE.

TETANY IN INFANTS.[1]

BY

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(With three charts.)

THE disease known as tetany has been so fully described by J. Lewis Smith,[2] and the cases of it which have been recorded as occurring in North America have been so carefully collated by J. P. Crozer Griffith,[3] that further elaboration might seem to be unnecessary. Tetany has never been discussed in this Society, so that its introduction may excite renewed interest.

[1] Read before the Washington Obstetrical and Gynecological Society.
[2] Archives of Pediatrics, 1889, vi., 372.
[3] Amer. Jour. Med. Sci., 1895, cix., 158.

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The object in presenting it at this time is twofold: first, to report two cases in very young infants which were recently under my own observation; and, second, to collate all of the published cases of tetany in infants 2 years of age and under which have been reported in North America.

A careful study of the clinical picture of the cases herein recorded will doubtless stimulate you to recall similar cases which have either been diagnosticated as something else or reported as carpo-pedal contractions or laryngismus stridulus accompanying some general condition of ill-health. I had occasionally seen carpo-pedal contractions in infants suffering from some general disease and had recorded them in the clinical notes, but had not recognized such symptoms as tetany even as late as 1892 when my fatal case of laryngismus stridulus was reported.[1] So two years later, when Griffith included it in his collection of cases of tetany, I was compelled by the similarity of the cases to admit that my patient succumbed to one of the symptoms of tetany.

The history of tetany in Smith's article is so complete that I shall refer my readers to it. In 1832 Tonnelé described tetany as a new convulsive disease of childhood; and in 1851 Corvisart introduced the term tetany—*tétanie*—which is still employed by all writers.

Tetany is a condition characterized by an intermittent or continuous tonic contraction of muscles. It usually affects the muscles of the extremities, but may involve those of the face, neck, and trunk. When limited to the hands and feet it is usually called carpo-pedal contractions, or arthrogryposis; but later writers declare that such spasms are only phenomena of the same general condition. Laryngismus stridulus is usually associated with tetany of infants, but is seldom observed in older children.

Tetany may occur at any age, but is more frequent in infancy and early childhood. Koppe's cases were all from 1 to 2 years; Ganghofner reported 40 cases, 5 being between 2 and 3 years of age and 35 between the ages of 1 month and 2 years; Rilliet and Barthez reported 28 cases, 14 being infants; Eustace Smith says the largest number occur between the first and third years; in 140 cases tabulated by Gowers, 64 were under 4 years; Erb says a strong tendency to tetany is exhibited in early childhood; Baginsky describes 15 cases between 2 and 8 months, the majority of them being between 3 and 4 months; in Herz's 5

[1] Archives of Pediatrics, 1892, ix., 881.

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cases the ages varied from 2½ to 8 months; Escherich's 30 cases ranged between 8 and 24 months. My own cases ranged from 2 days to 5 months.

The condition is more common in boys than in girls. Twenty of the 28 cases reported by Rilliet and Barthez were in boys, 3 of Herz's cases were in boys, and my 3 were in boys.

There is the greatest variety of opinion as to the cause of this condition. In some the slightest excitement will bring on a spasm. There does not seem to be an inherited predisposition, although as many as four cases in the same family have been reported. Baginsky says it is considered by some to be due to a simple neurosis, but this is denied by Kussmaul; by others to an affection of the peripheral ends of the nerves; by others to a lesion of the spinal cord, the medulla, or some other portion of the nervous system. Baginsky considers it an affection of the peripheral ends of the nerves, due in some cases to toxic irritation, especially when associated with disease of the gastro-enteric tract. J. T. Carpenter emphatically states that "tetany, as a general rule, follows upon such diseased conditions of the system as are observed to produce morbid discharges from mucous surfaces, whose absorption is known to cause symptoms in remote parts of the body, due to the circulation of septic poison. . . . In all cases of recorded observations of morbid processes antecedent to tetany a probable sepsis may be inferred, and no other cause common to them has so far been discovered. It is, therefore, logically necessary to assign the causation of tetany to this fundamental peculiarity as the antecedent factor, and to consider tetany, not as an independent disease, but as a disorder consequent on some one of those diseases which generate septic poison."

Rehn says most authors believe rachitis to be the primary cause, while others consider it to be a result of bad feeding, causing a distension of the alimentary canal by indigestible food, and as a consequence an irritation of the vagus. He claims that the condition is never met with in infants that receive a proper supply of breast milk, and gives the history of five cases of artificially-fed infants a few months old in whom the symptoms disappeared at once, or at least within a few days, after they had been furnished with good wet-nurses. From his cases he concludes that rachitis has no relation whatever to laryngeal spasm and its associated tonic convulsions of the extremities, but that it is a reflex phenomenon from the stomach and due to bad food, which generates the direct cause of irrita-

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tion—poisonous toxins. Jacobi says that in 49 out of 50 cases the cause of laryngismus stridulus is craniotabes and meningeal and encephalic hyperemia and effusion. "Years ago Friedländer collected everything known about the thymus gland, and it is particularly to his credit that the connection between it and laryngismus was disproved and that between the latter and craniotabes was established."

Kassowitz conjectured that the cause must be sought in an inflammatory hyperemia of the bones of the skull, producing an irritation by their engorgement.

All of Herz's cases suffered from dyspepsia and intestinal catarrh and were badly nourished. Hence he thought the clinical phenomena indicated anemia of the cord, the latter easily reacting to slight stimulation and giving rise to tonic spasms.

The infectious diseases; toxic agents, as alcohol, ergotism, and chloroform; intestinal parasites, especially the tapeworm; exposure to cold or wet in those predisposed to rheumatism; dentition, habitual constipation, rachitis, and thyroidectomy, have been cited as causes. Rachitis in the first, traumatism in the second, and erysipelas in the third are believed to be the respective causes in my cases.

Our knowledge of the pathology of this condition is very uncertain. The pathological findings of different observers are given by Sachs in his work,[1] but "no constant anatomical lesions have been demonstrated in tetany,"[2] and all theories are purely speculative.

The symptoms are purely objective in the infant and occur suddenly, without premonition, the tonic spasm usually being ushered in by a cry indicative of an intensely acute pain. The cramps usually begin in the upper extremities, but are rarely confined to them and extend to the lower. In some the flexors alone are involved, while in others both flexors and extensors. The tonic convulsions are bilateral, but the same groups of muscles on both sides are not always affected at the same time. The position assumed by the hands is pathognomonic, "the contraction of the thenar and hypothenar muscles causing 'bowling' of the palms of the hands"; the fingers are flexed at the metacarpal articulation, while the phalanges themselves are extended; the thumbs are adducted across the palm and may remain in this position throughout the attack, but in some cases

[1] "Nervous Diseases of Children," p. 165.

[2] Holt: "Diseases of Infancy and Childhood," p. 669.

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the thumb is firmly flexed and held under the index finger; the hand is drawn toward the ulnar side and flexed upon the forearm. The thighs and legs may be extended or flexed. the foot extended into talipes equinus, and the toes flexed. In some severe cases the muscles of the head. neck, and trunk are involved. If spasms of the thoracic muscles occur. dyspnea, or even cyanosis, may be present. The pain accompanying the spasm is intense and will cause the infant to cry out.

Trousseau's symptom, which is considered pathognomonic, consists in exerting pressure on the large nerve trunks and arteries during the stage of relaxation, thereby eliciting tonic contraction in the muscles supplied by them.

"Increased electrical excitability has been found to be characteristic of tetany by Erb, Chvostek, Weiss, and others. According to these authors the faradic and galvanic responses of the motor nerves are enormously increased during the interval between the attacks of tetany" (Sachs).

"Increased mechanical excitability is a still more striking symptom of the condition, a simple touch with a percussion hammer upon a nerve trunk being sufficient to produce contractions of the muscles supplied by the nerve. This is by far the most convenient test to make in cases in which the existence of tetany is suspected, and it is far better to endeavor to establish this fact of increased mechanical excitability than to excite an attack by pressure upon a large nerve trunk or a large artery" (Sachs).

The duration varies from a day or two to several weeks, with a tendency to recur in some cases.

The diagnosis is easily made from the peculiar grouping of symptoms, the characteristic position of the hands and feet, the bilateral contractions, Trousseau's symptom, the presence of some previous disease or disorder, and the absence of cerebral disturbances.

The differential diagnosis is not difficult. It may be confounded with tetanus, but the absence of trismus would exclude the latter. From organic disease of the brain it may be differentiated by the intermission in the contractions and the non-impairment of the sensorium. Its being bilateral distinguishes it from muscular contractions produced by lesions in the nerve trunk.

The prognosis in infants is favorable, for it soon ceases and seldom returns. Recovery is usually perfect, but atrophy of

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muscles is possible. A fatal termination is always due to the disorder which causes the tetany.

As tetany is produced by some other condition, the rational treatment would be to remove the cause. If the primary cause can be ascertained the remedies should be directed to it.

Thyroid feeding in tetany has recently been tried by some careful observers. In Cabot's cases treated with thyroid extract, only four improved, but two of them were obstinate and of long standing, and five months later were well. He thinks thyroid feeding may help us to distinguish different types of the disease, according to the action of the thyroid extract. Thus we may be enabled to differentiate the thyroidal from the non-thyroidal types of tetany.

Maestro experimented with thyroid feeding in the treatment of three cases of tetany in children. The treatment was begun with small doses of raw or slightly cooked thyroid gland and gradually increased until thirty grains daily were given. His results in these three cases were so satisfactory that he felt justified in offering the following conclusions:

1. The administration of the thyroid gland is extremely useful in the treatment of idiopathic tetany in children, as it always diminishes the intensity and the frequency of the attack and shortens the duration of the disease; it also hastens the arrival of the latent period which precedes recovery.

2. The treatment is well tolerated by the children.

3. The organic changes, the digestive functions, and diuresis are not notably influenced by this mode of treatment.

4. The circulatory and respiratory functions are accomplished normally during this treatment.

5. In very young children, on account of their perfect tolerance, it is useful to administer the thyroid gland, raw or slightly cooked, internally.

6. With the exception of certain peculiar cases, it is not necessary to suspend the treatment from time to time.

7. The daily dose is from thirty to sixty grains.

8. This treatment is not opposed to the symptomatic treatment, as it does not present any incompatibility with the methods ordinarily employed.

If the cause be sepsis, antiseptic measures should be employed. The bromides may diminish the severity of the paroxysms and should be administered. The general health, especially the nutrition, of the infant should be carefully supervised.

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In the 49 cases there were 25 boys and 12 girls, and the sex was not stated in 12.

The statement as to the color is so uncertain that we cannot draw any positive conclusion, although only two were recorded as being negroes.

The cause was said to be gastro-enteric in 21, rickets in 8, septic in 3, and erysipelas in 2, but was not stated in 15.

The result was stated to be recovery in 31 and death in 6—one really dying of diphtheria—and was not stated in 12. We are safe in concluding that the 12 in which the result is not given recovered, for if they had died it would certainly have been recorded.

CASES.

I.—1833. Eberle.[1] Child 19 months old, seized with laryngismus stridulus. Typical contractions of hands and feet. Bowels torpid, stools clayed, slimy, and offensive.

II.—(Eberle's case).[2] Child aged 9 months, symptoms corresponding to the above.

III.—1844. Axson.[3] Probably an infant, with laryngismus stridulus. "Slight general convulsions ensued, thumbs bent forcibly in the palm, and the toes were strongly flexed."

IV. to VII.—1844. Epperson, J. P.[4] Reports four cases of laryngismus stridulus associated with carpo-pedal spasm. These all occurred in the same family, who occasionally throughout their infancies, from the seventh week to the eighth month, had frequent attacks of laryngismus stridulus, with typical contractions of the muscles of the extremities.

VIII.—1848. Meigs, J. F.[5] Boy, age 7 months, breast-fed, and healthy up to one week before this attack, when he had diarrhea followed by constipation. Laryngismus stridulus with characteristic contractions in the upper extremities, which lasted four months, during which he had gastro-enteric derangement. Recovery.

IX.—1848. Meigs, J. F.[6] Child, age 2 years, after a restless night, had tonic contraction of the flexors of all the toes of both feet, the insteps being much swollen. Constipated for several days. Recovery after thorough purgation.

X.—1850. Meigs, C D.[7] Laryngismus in a male infant of 6 months, carpo-pedal contractions, opisthotonos ending in general convulsions. The attacks recurred with increasing frequency for thirty days; patient then died.

XI.—1853. Meigs, J. F.[8] Girl of 9 months, bottle-fed and

[1] Dis. and Phy. Ed. of Ch., 527. (Case of Jos. Johnson.)
[2] Ibid. [3] New Orleans Med. Jour., 1844, 145.
[4] West. Jour. Med. and Surg., 1844, 2 s., 11-25
[5] Dis. Ch., 1848, 424 Dr. Benedict communicated this case.
[6] Ibid., 429.
[7] Dis. Ch., 169. [8] Ibid.

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"mixed-fed." During its early months it had some disorder of the digestive system. Congenital nevus removed by ligation when 9 months old. Sloughing and suppuration resulted. Four days thereafter general convulsions. Condition then good for one week, then awakened screaming, and typical carpo-pedal contractions were discovered. In three weeks' time, as the condition had not changed, a wet-nurse was secured. In one month had recovered, but one month thereafter had a recurrence of contractions associated with intestinal indigestion and laryngismus. Finally recovered, but the slightest sickness reproduced some contraction of one leg and slight flexion of the hands. "I have long been convinced that the cause of this contracture lay in the disordered state of the digestive functions, produced and kept up by the necessity of using artificial diet, and perhaps by an unhealthy state of the mother's milk."

XII.—1858. Kincaid, W. J.[1] White male, age 4½ months. Paroxysms of laryngismus stridulus, lasting from one-quarter of a minute to one and one quarter minutes; typical carpo-pedal contractions. Case yielded to cannabis indica and chloroform internally.

XIII.—1859. McMeens, R. R.[2] Boy, 12 months. Paroxysms of laryngismus stridulus, lasting five months, very frequent. Typical contractions. Constipation. Recovery.

XIV.—1862. Fourgeaud.[3] Girl, 19 months, was thought to have disease of the spine, owing to marked curvature, redness and tenderness over the most protruding portion. Spasm confined to the lower extremities. The knees were extended forward. legs crossing below the knees, forming the letter X, while the heels were drawn up and the feet turned on the sides. Child recovered in a few weeks.

XV.—1884. Smith, I. W.[4] Case reported as trismus nascentium. Male, 3 days old. Lower limbs flexed and feet inverted; both humeri dislocated forward, arms shortened, fingers variously distorted by muscular contraction. Tonic rigidity of all the muscles, which was increased by any attempt to straighten the limb. Death on the twelfth day.

XVI.—1886. Carpenter, J. T.[5] White male, 13 months old. Abscess near hip joint, pain and fever. Abscess opened and healed, but the symptoms of tetany set in. Attacks intermittent; child died in one week.

XVII.—Carpenter, J. T.[6] White female, age 11 months. Septic poisoning from an attack of scarlet fever. Abscess of shoulder joint, which was opened and healed, after which the child developed nervous symptoms, such as restlessness, twitching, and laryngeal spasm. Frequent attacks of "crow-

[1] Trans. Ohio State Med Soc., 1858.
[2] Cincin. Lancet and Observer, ii., 457.
[3] Pacific Med. and S. Jour., 1862, v., 303.
[4] Am. Jour. Obst., 1884, xvii., 488.
[5] Trans. Assoc. Am. Physicians, 1886, i., 105.
[6] Ibid.

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ing croup," especially after fits of crying. Typical contraction present. Child recovered. but for several years thereafter was liable to attacks of tetany from very slight causes, as catching cold. diarrhea, etc.

XVIII.—Carpenter.[1] Child, age 6 months. Erectile tumor removed from the scalp by ligation. Erysipelas set in, followed by systemic infection. Shoulder joint was opened, dressed, and treated antiseptically. Perfect cure of shoulder resulted. Soon after nervous manifestations set in. Restlessness was extreme; laryngismus stridulus came on after the least distress or fright, which persisted until the child died of diphtheria.

Carpenter attributes the attack in this and the preceding case to septic infection.

XIX.—1889. Earle, C. W.[2] Girl, age 6 months. Teething, bottle fed, tendency to eczema; painful contractions of hands and feet, which were considerably swollen. No constitutional symptoms. Recovery in ten days. This child died one month later of cholera infantum of a day's duration.

XX.—1889. Smith, J. Lewis.[3] Boy, age 7 months, no teeth. Tetany began at the age of 2 months, when the child was taken from the breast. Has been fed on condensed milk and patent food; habitual constipation. Typical attacks accompanied by laryngismus, the latter occurring day and night. Pain on attempting to straighten fingers and toes. Attack lasted four months. One tooth pierced the gum during the four months of tetany.

XXI.—1889. Smith, J. L.[4] "B.," 20 months, well nourished; typical contractions lower limbs; attempts to straighten painful. Gums swollen and congested. Bowels sluggish. In three weeks the imprisoned teeth were cut and the contractions ceased.

XXII.—1889. Smith, J. Lewis.[5] Female, age 11 months. Had diarrhea, which was checked. Five days later typical attack of tetany, which lasted five days. Cure with bromides and chloral.

XXIII.—1889. Smith, J. Lewis.[6] Male, 15 months. Four teeth. Diarrhea much of the time since birth; perspiration of head; rachitis. At twelfth month mother noticed toes flexed and the feet extended, with rigidity. This condition continued for more than three months, with intervals of two or three days in which the muscles were normal.

XXIV.—1891. Small, E. H.[7] Boy, 11 months old, breast-fed. Hands and feet swollen, edematous and cyanotic, with ecchymoses. The contractions were typical. Indigestion two days previously. Recovery in one week. The child rachitic.

XXV.—1892. Adams, S. S.[8] Boy, 4 months old. Diges-

[1] Trans. Assoc. Am. Phys., 1886, i., 105.
[2] Trans Amer. Ped. Soc., 1889, i., 153.
[3] Archives Ped., 1889, vi., 374. [4] Ibid., 876.
[5] Ibid. [6] Ibid., 473.
[7] St. Louis Med. and Surg. Jour., 1891, ix., 271.
[8] Archives of Ped., 1892, ix., 881.

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tive disturbances, phimosis, incipient rachitis, laryngismus and several eclamptic seizures. Later, typical convulsions, several attacks during the day. Death shortly after from laryngismus.

XXVI.—1892. Bowen, W. S.[1] Girl, 6 days old. Convulsions typical. Death.

XXVII.—1893. Evans, D. J.[2] Colored female, age 17 months. Breast-fed for six months, then fed on patent food. Typically rachitic. Spasms typical. Recovery in ten days.

XXVIII.[3]—White female, age 10 months, breast-fed. Child had been failing rapidly. Stools undigested. Typical contractions. Recovery in ten days.

XXIX.—1893. Jacobi.[4] Boy, age 9 months. Rachitic laryngismus stridulus.

XXX.[5]—1893. Peculiar position of the limbs, spasms particularly affecting muscles of hands.

XXXI.—1895. Griffith, J. P. Crozer.[6] Male, age 19 months. Fairly well nourished. Several eclamptic attacks when 2 weeks of age. Pneumonia when 1 year old. Typical convulsions; effort to forcibly overcome the contractions caused screaming. Constipation. Attack subsided and returned in one month during an attack of rubella. Another recurrence two months later. Died some years later of obscure meningeal disease. No autopsy.

XXXII.[7]—Light mulatto, 2 years old, seen in 1889. Had had difficulty in swallowing for five months. Solids taken more easily than liquids. Laryngismus. Typical convulsions. Well-marked rickets. When heard from a year later was still having the attacks.

XXXIII.[8]—Female, 6 weeks old. First seen in 1892. Breast-fed and fairly well nourished No previous illness. Two weeks previously the child cried when moved. Improvement in one week. In three weeks' time the child was weaned and fed on substitute food. For two months she lost in health and became greatly emaciated. A flat, papular syphiloderm made its appearance, and with it a return of the convulsions. Efforts to straighten the arms always caused pain. Died six months after the onset of the tetany. No autopsy.

XXXIV.—1895. Lewi, Emily.[9] Male, age 9 months. First seen February 27, 1894, four days after a convulsion. Rickets. Typical convulsions in upper extremities. Attempts to straighten contracted muscles caused pain. Microscopical and chemical examinations of urine negative. Bromides administered. No gastro-enteric disturbance noticeable. A neurotic temperament was thought to be the predisposing cause of this functional nerve disturbance.

XXXV.[10]—Male, age 8 months. Two children, both rachi-

[1] Med. News, 1892, lx., 434.
[2] Montreal Med. Jour., 1893, xxiv., 183.
[3] Ibid. [4] Archives of Ped., 1893, 1055. [5] Ibid.
[6] Am. Jour. Med. Sciences, 1895, cix., 15
[7] Ibid. [8] Ibid.
[9] Archives Ped., 1895, xii., 602. [10] Ibid.

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tic. One of these treated in the fall of 1893 for attacks of tetany. Occasional attacks of constipation and diarrhea with vomiting since 2½ months old. First convulsion noticed when 8 months old. Three days before, child irritable and cried when touched. Contractions of upper extremities persistent during sleep. Child rachitic. No teeth. Typical convulsions, extremities. Slightest attempt to straighten fingers or toes caused pain. Bromides. Child apparently well for two months, and then died during an attack of tetany.

XXXVI.[1]—1895. Male, age 8 months. Previous history not known. For a week irritable and troublesome at night. First seen March 27, 1895. Peculiar position of hands for last four days; pain on attempting to straighten. Child pale, poorly nourished, rachitic. Typical convulsions upper and lower extremities; increased electrical reaction. Bromides. Well in three weeks.

XXXVII.[2]—Male, age 13 months. Three other children, all of whom had had this same trouble when a year old. Patient had a convulsion when 4 months old. Three days before he was presented for treatment, was taken ill with fever, closed his eyes, clenched his fists, held his breath, and then made a great deal of noise when he breathed. Constipation. Vomited daily. Rachitic. Typical convulsions of hands and feet, and pain on attempting to straighten them. Laryngismus stridulus typical. Cured in a week. No return of spasm.

XXXVIII.—1895. Crandall, F. M.[3] First seen December 22, 1893. Male, age 6 months. Bronchitis, frequent colic and diarrhea. Typical convulsions, severe and frequent. Recovery.

XXXIX[4]—1895. First seen March 12, 1894. Male, Italian, 1 year. Rachitic, but no craniotabies. Indigestion. Vomiting; diarrhea. Typical convulsions. Recovery.

XL.—1896. Krauss, W. C.[5] Male. age 6 months. Had been in perfect health. April 14, 1895, mother noticed the child crying; typical convulsions and profuse perspiration. Attempts to straighten the muscles caused great pain. Lasted three days, then ceased, to reappear four days later in a more severe form. Child was breast-fed; bowels were at first constipated and then loose. Convulsions typical. Pressure over the brachial and ulnar nerves would invariably produce an exacerbation of the spasm. Recovery in a month.

XLI.[6]—Male, 18 months, bottle-fed. First seen February, 1895, suffering with bronchitis, gastric disturbance, and diarrhea. The following day typical contractions were noticed. Numerous attacks during the day. Recovery in a week.

XLII.[7]—Male, age 13 months. When first seen had bronchitis and gastro-enteric disturbance. Child breast-fed. Convulsions typical. Recovery in six days. Slight recurrence ten days thereafter.

[1] Archives Ped., 1895, xii., 602. [2] Ibid.
[3] Med. Rec., N. Y., 1896, xlix., 44. [4] Ibid. [5] Ibid.
[6] Trans. Amer. Ped. Soc., 1895, vii., 208. [7] Ibid.

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XLIII.[1]—Female, age 9 months. Bronchitis and tetanic contractions of hands and feet when first seen. The attacks were of longer duration than the preceding cases, more severe, and the intervals shorter. Recovery in three weeks. Death four weeks later from acute meningitis, but there was no recurrence of the tetany.

XLIV.[2]—Female, age 11 months. Fed on patent food. When first seen was suffering from bronchitis and gastro-enteric disturbance. Severe, typical tetanic contractions. Recovery in two weeks.

XLV.—1896. Ferguson, F. N.[3] Male, age 10 months. Large, well developed, healthy. Four teeth, last cut during illness; intermittent pains and spells of crying. Attacks recurring for several months Circumcision performed, but of no benefit. Cure.

XLVI.[4]—1896. Boy, age 18 months, bottle-fed. Vomiting and diarrhea. Recovery in a week. Week later typical contractions. Cried when attempts were made to overcome them. Recovery in a week. No return.

XLVII.—1896. Lothrop, H. A.[5] Child, age 18 months. Suppurative otitis media. Rachitic. Convulsions typical. Chvostek's symptom present.

XLVIII.—December, 1896. Adams, S. S. Male, age 2 days. Mother in labor twenty-four hours, when forceps were applied to breech. The breech was brought through vulva several times, but invariably slipped off. After several hours' hard work in endeavoring to deliver, Dr. J. T. Johnson came to the rescue and succeeded in bringing down a foot and speedily terminating labor. The child was resuscitated by Dr. Acker. The scrotum was greatly swollen and almost black, and there was a contused wound over the anterior portion of the crest of the ilium. Labor was complete at 8 P.M.

The next morning (Tuesday) the prepuce was found to be swollen and inflamed. As the child had not passed urine since its birth, and as the meatus could not be exposed owing to the phimosis, circumcision was performed. Hemorrhage was profuse and could not be controlled for several hours. Several sets of sutures were applied and various styptics used, but the hemorrhage continued until the application of a forty per cent solution of antipyrin controlled it. Urine had been voided several times, but the infant was in collapse from loss of blood. He revived, however, under the judicious administration of food and stimulants. At my visit on Wednesday morning the infant was found to be in a fair condition, but the nurse reported that she "had never seen a baby act so queerly; during the night he would frequently utter a piercing scream and his legs would go like a windmill." She had scarcely finished speaking before the infant screamed and the typical contractions of tetany began. The hand was "bowled," the phalan-

[1] Trans. Amer. Ped. Soc., 1895, vii., 208. [2] Ibid. [3] Ped., 1896, ii., 1857.
[4] Ibid. [5] Boston Med. and Surg. Jour., 1896, cxxxv., 513.

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ges extended, and the thumbs firmly adducted; the contractions in the feet were also typical. When the acuteness of the spasm had subsided an attempt was made to straighten the thumbs, but the pain was too severe to permit it. The convulsions became less frequent and by the fifth day had disappeared. The child is now 6 months old, healthy, and there have not been any more convulsions.

XLIX.—1897. Adams, S. S White, male, age 5 months. Was treated in the Foundlings' Hospital. On March 24, 1897, was taken with measles and pneumonia, and after a severe

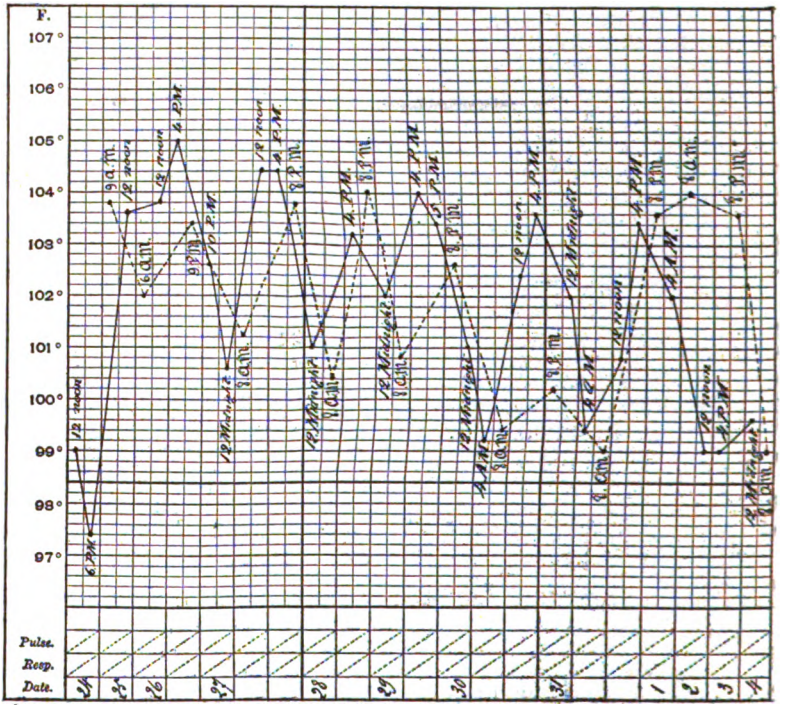


CHART 1.—Case XLIX. Measles and pneumonia. Temperature did not rise over 99.5° after April 4.

illness was finally discharged, cured, April 9. From this time he remained perfectly well, and gained in weight until about the first of May, when he began to lose in weight and have attacks of slight indigestion. Nothing unusual, however, occurred until May 23, when a large abscess appeared on the head near the anterior fontanelle. This was opened, when it was discovered that the pus had burrowed a considerable distance in every direction under the scalp. The fever ran very high and continued to go up during the night in spite of frequent baths. The next morning a decided erysipelatous

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inflammation, involving the greater part of the scalp, was

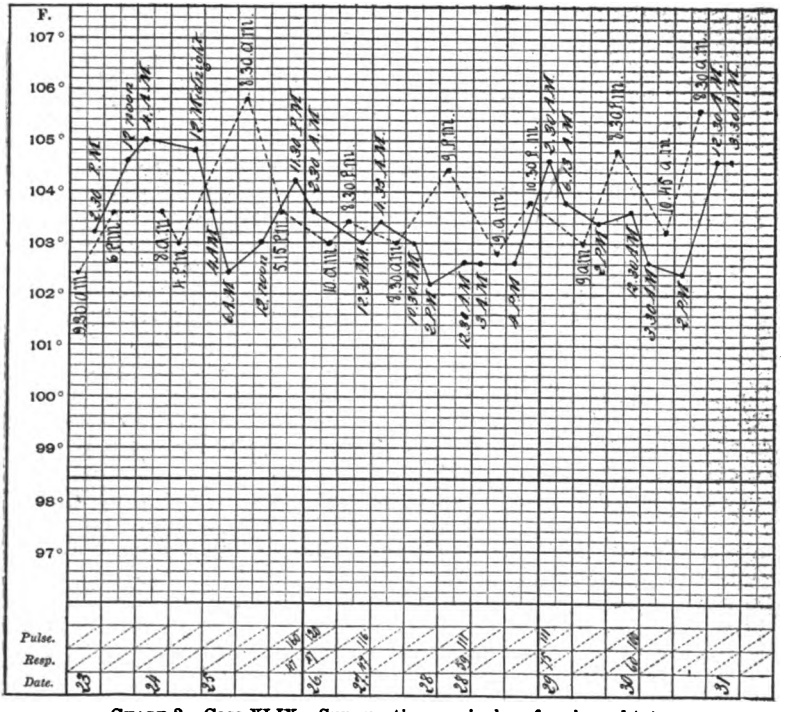
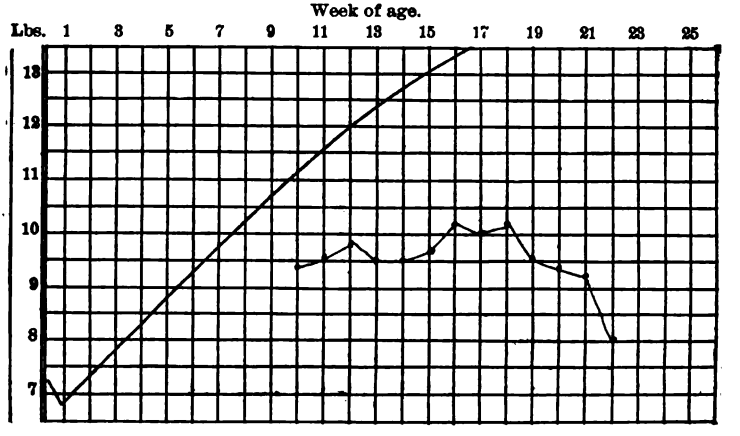


CHART 2.—Case XLIX. Suppurative erysipelas of scalp and tetany.

present. That evening the head nurse telephoned to me that the



Section of weight chart. The curved line represents the average weight curve of a healthy infant; the broken line, the weight of Case XLIX. from the tenth week till death.

fever had somewhat subsided, but that the child was having

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convulsions. Supposing this condition to be due to the high fever, I ordered the continuance of the baths and suppositories of quinine. The child was taking very little nourishment. Upon my visit the next day the convulsions were recognized as typical of tetany. The thumbs especially were strongly adducted, and any effort to straighten them caused the child to scream with pain. The convulsions lasted about forty-eight hours and then disappeared. The child's general condition remained about the same. A number of openings were made in the scalp, and the pus cavities were washed out every three hours with a saturated solution of boric acid. On the 29th I recognized septic pneumonia, from which the child died on the 31st. The temperature charts of the measles and pneumonia, of his last illness, and the weight chart, are here presented.

Necropsy three hours after death. No rigor mortis. Body emaciated. Deflexion of coccyx to left. Ten openings in scalp. Top of skull covered with pus. Anterior fontanelle covered by a diphtheritic membrane. Four spots, about size of a ten-cent piece, devoid of pericranium. Inside of skull congested; no inflammatory products present. Brain: Surface slightly congested. Cut section shows numerous red points, which are unusually prominent. No fluid in lateral ventricles. Lungs: Upper portion of right lung consolidated; also upper part of lower right lung in same condition. Same condition in left lung. On section a purulent discharge was noted from the bronchi on pressure. Liver congested. Gall bladder distended with a straw-colored fluid serous in character. Kidneys congested, slightly enlarged; capsule non-adherent. Spleen slate color. The apex of right lung bound down by pleuritic adhesions.

1 DUPONT CIRCLE.

MEMBRANOUS DYSMENORRHEA.[1]

BY

GEORGE WYTHE COOK, M.D.,
Washington, D. C.

THE function of menstruation is one of the most interesting of the physiological occurrences that take place in the female organism, whether we adopt the view of Pflüger, who "regards the bloody discharge from the superficial layers of the uterine mucous membrane as a physiological preparation, or 'freshening,' of the tissue (in the surgical sense), by which it will be prepared to receive the ovum when the latter reaches the uterus, so that union can take place between the ovum and the freshly-exposed surface of the mucous membrane, and thus

[1] Read before the Washington Obstetrical and Gynecological Society.

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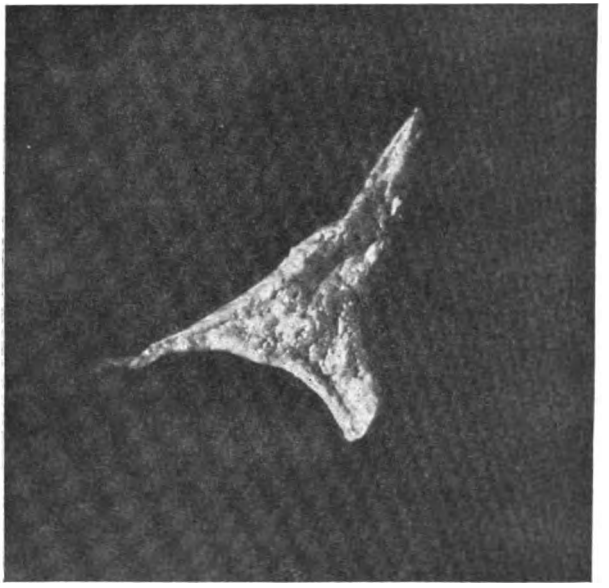
the ovum will receive nourishment from a new surface"; or the theory of Reichert that "before an ovum is discharged at all there is a sympathetic change in the uterine mucous membrane whereby it becomes more vascular, more spongy and swollen. The mucous membrane so altered is spoken of as the *membrana decidua menstrualis*, and from its nature it is in a proper condition to receive, retain, and nourish a fertilized ovum which may come into contact with it. If the ovum, however, be not fertilized and escape from the genital passages, then the uterine mucous membrane degenerates and blood is shed, as above described. According to this view the hemorrhage from the uterine mucous membrane is a sign of the non-occurrence of pregnancy; the mucous membrane degenerates because it is not required for this occasion; the menstrual blood is an external sign that the ovum has not been impregnated."

The important circumstance in connection with the subject under consideration is the fact that the uterine mucous membrane is cast off at each menstrual efflux. The exfoliation of the entire mucous membrane of the uterus, including the utricular glands, so as to show a cast of the uterine cavity as a whole or in segments, is rather a rare occurrence, yet it is sufficiently frequent, and is accompanied by so much pain as to constitute a distinct form of dysmenorrhea. "In normal menstruation," according to Dr. Williams, of London, "the whole mucous membrane undergoes fatty degeneration and elimination, whereas in membranous dysmenorrhea the mucous membrane becomes separated from the walls of the uterus without being changed or disintegrated; exfoliation and expulsion simply occur. The way in which the separation of the mucous membrane takes place is not positively known. It is presumed, however, that fatty degeneration in the deeper structures of the membrane takes place and thereby it becomes detached from the uterus. It is possible, also, that the capillary hemorrhage, instead of occurring on the free surface of the membrane, takes place in the deeper structures and in that way dissects off the membrane."

This hypothesis is a very reasonable one and would seem to be sustained by the behavior of the following case. A cultivated and refined lady, 36 years of age, of fine development and general robust health, gives the following history: She first menstruated at 12 years of age, her periods being always painful. She was married when she was 19 years old, and gave birth to a healthy child at 20, which she nursed. She became pregnant

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a second time and miscarried at 23. Three years later she began to notice at intervals pieces of membrane in her menstrual discharges. She describes her menstruation as beginning with much pain, which continues for from twelve to twenty-four hours, necessitating her remaining in bed for a day. During the last few hours of this painful period there is a small flow of a slightly colored fluid, and then with the expulsion of the membrane all pain ceases and there comes a considerable discharge of what she describes as "clear blood, as if I had cut my finger," which continues for about twenty-



Cast from uterus in case of membranous dysmenorrhea.

four hours, when it loses its bloody character. Five years ago she was in Europe, away from her husband, for four months, when she did not suffer at her menstrual periods, but she was having local treatment during this time. She first consulted me for this trouble a little more than a year ago, when a vaginal examination revealed a slight laceration of the cervix, the uterus somewhat enlarged, retroflexed, and bound down. She did not complain of anything besides the menstrual pain, except occasionally some slight discomfort in the right ovarian region. I asked her to preserve the next membrane that she passed, in order that I might have it examined. I here show the specimen and a photograph of the same taken by Dr. Wm.

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M. Gray, of the Army Medical Museum. This is Dr. Gray's report of the microscopic examination of the specimen:

WASHINGTON, D. C., May 11, 1895.

Dr. G. Wythe Cook.

DEAR DOCTOR:—The specimen you sent me for microscopic examination proves to be, as you suspected, a portion of the mucous membrane lining the uterus. It is greatly changed from its normal condition; most of the epithelial cells have become necrotic and are incapable of being stained; the entire tissue mass is infiltrated with leucocytes and red blood cells. If it were not for the gland ducts seen here and there in the section, it would be quite difficult, if not impossible, to say the specimen was derived from the mucous membrane of the uterus. Yours very truly,

W. M. GRAY.

I have here four other membranes which she passed at as many different times, the last one having been cast off just three weeks ago. In examining the specimens you will observe the smoothness of the surface which is the inner face or mucous surface. The external face is soft and irregular, showing the openings of the utricular follicles. As the first specimen that came into my possession was not as well preserved as it might have been, and not being very satisfactory for microscopical examination, I submitted this last specimen to Dr. Walter Reed, of the Army Medical Museum, who made the following report:

"Microscopic examination of hardened sections of fragments of membrane discharged in case of membranous dysmenorrhea gives the following results: Apparently some multiplication of the glandular structure, with intense congestion of the vessels and extensive hemorrhage into the mucosa. In addition, especially in the deeper parts of the mucosa, large numbers of polynuclear leucocytes are to be seen, and in places fibrin intermingled with these. Often the lumen of the glands is filled with red cells and leucocytes. The cells proper of the mucosa are much increased in number, and karyokinetic figures are quite frequent. In other words, the picture appears to be that presented by the uterine mucosa at the menstrual period plus some inflammatory reaction. Sections stained for bacteria give a negative result."

The treatment of this case consisted in the application of iodine to the internal surface of the uterus, which was without benefit. I then curetted the uterus and again applied iodine, with the effect that for several periods there was no membrane passed and little pain was experienced. Treatment was discontinued, and she now passes with much pain a membrane at

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each monthly period. She seems so vigorous and in such robust health, having no other trouble than the menstrual difficulty, and saying that in the interval "I forget that I was ever sick," it is difficult to account for the exfoliation in mass of the membrane, except on the theory that a capillary hemorrhage takes place in the deeper structures and into the superimposed membrane, lifting it off, and it being discharged with an effusion of blood, as described above. It is impossible to say why the mucous membrane in these cases does not undergo the ordinary degenerative changes incident to menstruation. It would seem to be a perversion of nutrition and function rather than an organic disease. It may be that there is some change of innervation by which the afflux of blood to the parts becomes so sudden and so abundant that the membrane is forced off before the ordinary degeneration occurs. The theory of Dr. John Williams, of London, is that the membrane "is expelled as a whole or in masses in consequence of the presence of an excess of fibrous tissue in the wall of the uterus. This excess is due to imperfect evolution at puberty, imperfect involution after parturition or abortion, or it is the product of acute inflammation." If expulsion of the membrane as a whole or in masses was due to the presence of fibrous tissue in the wall of the uterus, it might be expected to occur when there were fibroid tumors in the uterine wall, which is not the case. It may be due to acute inflammation, as Dr. Reed says the membrane shows the condition of acute inflammatory processes, and yet it is difficult to account for the attack of acute inflammation occurring at each menstrual period.

The treatment recommended has been local applications of iodine, carbolic acid, and the like, curettage and electricity, and the use of such constitutional remedies as arsenic, the iodides, and mercury, but they are all unsatisfactory.

8 THOMAS CIRCLE.

CORRESPONDENCE.

MR. TAIT'S MISTAKE.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—Regarding Mr. Lawson Tait's letter, dated at Birmingham, December 14, 1897, and republished in the JOURNAL of May, 1898, I am surprised to note that he claims

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to have used no stronger antiseptic than soap and water in his abdominal work from 1884 to 1893.

As a matter of fact, I had the good fortune to learn of the use of a most valuable antiseptic for preparing the hands for operation, from Mr. Tait himself.

It was my privilege to be a member of Mr. Tait's class for about six weeks during the winter of 1890 (one of the years mentioned in his letter), and it was then his custom to wash his hands with spirits of turpentine the last thing previous to the commencement of an operation.

On this side of the water turpentine is considered as an excellent germicide, but possibly Mr. Tait does not use it for that purpose. I frequently make use of it in cleansing my hands after they have been in contact with septic material, and believe that its use in my abdominal work has in many instances enabled me to pass directly from a septic case to a clean one without injury to the latter.

I thank Mr. Tait for teaching me its use, and believe that, in all fairness to the discussion of the subject of antiseptics in surgery, he should use the turpentine in his statements as well as he so effectively does in his practice.

Very truly yours,

H. W. LONGYEAR.

MAY 26, 1898.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, April 22, 1898.

EDWARD P. DAVIS, M.D., *in the Chair.*

By invitation, DR. EDWARD REYNOLDS, of Boston, read a paper entitled

THE CESAREAN VERSUS FETAL MORTALITY. [1]

DR. WILLIAMS.—I have listened with a great deal of interest to Dr. Reynolds' paper. I thoroughly agree with what he has said about the increasing frequency with which Cesarean section is being performed. I think the mortality is less than the text books teach, but at the same time I do not think the excellent results obtained in Boston will be followed all over

[1] See original article, page 731.

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the country. I know of no statistics in this country which offer so favorable a mortality. Leopold, Olshausen, and Zweifel hold their mortality at about 5 per cent. That being the case, I cannot admit from the outset that the primary mortality of Cesarean section will be as low as Dr. Reynolds has stated. I believe that the mortality in properly selected cases will be from 3 to 4 per cent in the hands of experienced operators. When we come to the indications for which Dr. Reynolds has done Cesarean section in the cases reported, I must say that I cannot agree with him. I looked over the cases of contracted pelvis in which forceps was applied in the lying-in wards of Johns Hopkins Hospital, and I found 26 cases in which there was marked contraction of the pelvis. In none of these cases was the conjugata vera more than 9½, in many the conjugata vera was 7½, and in 1 case 7 centimetres. In these 26 cases high forceps were applied after waiting a variable time for labor to force the head down in the pelvis, which it failed to do. In all these cases none of the mothers were lost; the highest temperature recorded was 101½°; 2 children were lost, making 8 per cent mortality. The first case in which the child was lost was a colored woman with a flat, rachitic pelvis, with conjugata vera 8¼ centimetres. She had a fair-sized child, and after the second stage had lasted two hours, with no progress, we determined to put her on the table, anesthetize her, apply Tarnier forceps tentatively, and, if head did not follow, to resort to symphyseotomy. The forceps was applied, three tractions were made, when the head dropped down past the contracted superior strait, and with it a loop of cord, and the child died from compression of cord rather than action of forceps. The child weighed 3,000 grammes.

The second case was a German woman with an obliquely contracted pelvis, the result of an old coxalgia; she was pregnant for the seventh time. The first five had terminated spontaneously with living children; the sixth pregnancy had terminated spontaneously with a dead child, and we applied forceps and delivered a dead child. I consider the results are very satisfactory when only two children upon whom we applied forceps perished. This being the case, I should not accept Dr. Reynolds' teaching as applying to my own practice. The results we have obtained are quite as satisfactory as if we had done Cesarean section. As my experience with moderate degrees of pelvic contraction increases, I find myself becoming less and less confident in my predictions as to the termination of the labor in a given case. In such cases the only point that we can determine absolutely in advance is the degree of pelvic contraction; but unfortunately we have no reliable means of determining several other factors which are of equal if not greater importance than the pelvic contraction in determining the prognosis in a given case. Thus we have no accurate means of determining in advance the size of the child's head, and, what is perhaps even more important, whether it is hard and unyielding, or soft and readily moulded to the shape of the pelvis

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under the influence of labor pains; and, finally, we are absolutely unable to predict the efficiency of the labor pains. And until we are able to determine these factors with something like the accuracy with which we can measure the pelvis, the outcome in these cases can only be determined by carefully watching the case. My experience is that I cannot tell with a given contracted pelvis what will be the result of labor. I recall a case we had some time ago, a generally contracted rachitic pelvis with conjugata vera of 7 centimetres. We had everything ready to do a symphyseotomy. I told the resident to send for me as soon as the cervix was dilated. He called me some hours later and told me that within fifteen minutes after the cervix had dilated the child had been delivered spontaneously. About the same time that we had the case with a flat. rachitic pelvis in which the child died, we had another case with a conjugata vera 7½ centimetres, in which forceps was applied and a living child weighing 4,000 grammes was delivered without difficulty; so that even with much more marked pelvic contraction than Dr. Reynolds has spoken of we sometimes see our cases go to spontaneous termination and sometimes have to resort to other measures. If we have a contracted pelvis case with conjugata vera above 6½ centimetres a symphyseotomy would seem indicated, but the question is always a conundrum until we have waited to see what the effect of labor pains will be. Some of the children will be born spontaneously, others can readily be delivered by forceps, while a third class of cases will call for a symphyseotomy. After two hours of good second-stage pains in moderate degrees of pelvic contraction, if the head is still at the pelvic brim, the woman is put on table, anesthetized, and prepared for symphyseotomy. A Tarnier forceps is applied and three or four tractions are made. If the head does not descend the forceps is taken off and symphyseotomy is done. A very interesting contribution to this subject has lately been made by Queirel, of Bordeaux. In a recent article in the *Annales de Gynécologie et d'Obstétrique*, under the title "The Symphyseotomies that One Does Not Do," he records 14 cases in which he had decided in advance to do symphyseotomy according to the pelvic measurements and rough estimates of the size of the child; a number of these cases came off spontaneously and the remainder were extracted with forceps.

When I was last in Paris I saw Pinard do a number of symphyseotomies, but on several occasions when I had been sent for to see other cases operated upon I was told, upon entering the lying-in room, that the child had been born spontaneously before the instruments for symphyseotomy could be gotten ready. I would say, if you get a contracted pelvis of 8 centimetres or more, the chances of delivering the woman by forceps are very fair unless the child is abnormally large. Many of my most difficult cases have been with women with perfectly normal pelvis and abnormally large children. I cannot agree with Dr. Reynolds in going quite as far as he does. I believe Cesarean section should be resorted to in cases in which we

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have marked pelvic contraction, say from 6½ centimetres down; above that we should always stand ready to do a symphyseotomy if our tentative attempt with forceps fails. I believe in applying forceps to the side of the child's head, no matter in what position the child's head may lie. I do not believe that Cesarean sections could be performed in Baltimore, in the class of cases referred to by Dr. Reynolds, with the approbation of the public.

DR. E. L. DUER.—I do not presume to criticise Dr. Reynolds' paper, which I have listened to with a great deal of interest, but we cannot all be obstetricians and gynecologists at the same time. We cannot all furnish the same ratio of recoveries as Dr. Reynolds has furnished. I am not familiar with any large series of abdominal sections where the death rate has been so small. My experience, so far as I have kept note, has been entirely among the better class of American people, and I do not believe that there has been more than two per cent of minor pelves. As to rachitic pelvis, I have scarcely ever met with one in private practice. I would emphasize, however, what Dr. Williams has just said about the difficulty of determining the size and movability of the child's head. We hear a great deal of pelvimetry, but we hear very little of child's head measurements, and estimation of shape and proportions which will or will not allow it to come through a small pelvis. Show me, if you please, the father of the child, and I will give you a better estimate of the difficulty of the labor than from the pelvic measurements of the mother. I refer to the shape and size of the father's head. The only means I know of of correctly estimating, and one which I resort to very largely, is forcing the child's head down into the pelvis at weekly intervals before term, and so long as this can be effected there is reasonable hope of ready delivery.

As nearly as I am able to calculate from imperfect data, I have averaged the application of the high forceps about three times a year for the past twenty; and in so doing it has never been my misfortune to have lost a single mother and but two children in 75 deliveries, and neither of these two deaths did I think to have been due entirely to the forceps.

My experience has been largely in private practice, and generally among the better class of American women, and quite as often have I found the difficulty arise from the large size of the child in strong, athletic women as from the smallness of the pelvis when the child has been of ordinary size. Every one who appreciates and practises pelvimetry understands the importance of this compressibility of the head.

So far as Cesarean section in the abstract is concerned, we are inferentially to believe that all the children should be saved, and such has been the experience of Dr. Reynolds in his limited number of cases. But other observers have not been so fortunate. In looking over a large number of cases collected in Germany by Dr. Kaiser, I find him representing the death rate of the baby delivered by Cesarean section at birth at

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thirty per cent. Now, I grant the improvement in methods and technique has been very great since these statistics were given out, but it must be remembered that this has been mostly in the interest of the mother. And even assuming that the death rate of the child after such delivery has been reduced fifty per cent, there still remains an enormous mortality for Cesarean section over and above what could be reasonably possible from the use of the high forceps, premature induction, or symphyseotomy. Indeed, the classical operation of Cesarean section has always appealed to me as a necessity, in contradistinction to a choice. In the hands of such men as Dr. Reynolds and his Boston confrères this relation may be somewhat changed, but for the great body of obstetricians it is well for us to weigh well the possibilities of other measures before giving it a too prominent place. I would suggest that when the diameter is little over three inches, or less, at term, it may always be well to be prepared for a section; but before term the possibility of premature induction and high forceps should be thoroughly exploited. I thank Dr. Reynolds for his able, well-timed, and thoughtful paper.

DR. B. C. HIRST.—I have been much interested in and instructed by Dr. Reynolds' paper. What I have to say is not in the way of criticism, but is simply a statement of personal views.

In some respects I find myself in agreement with Dr. Reynolds, and I hope that his paper will have an influence in deterring general practitioners from an indiscriminate resort to forceps and to futile attempts at version, from which we, as consultants, see such unfortunate results. There is not a week that fetal life is not sacrificed in this way, and every year I see several maternal deaths from this cause. I cannot agree with Dr. Reynolds' hopeful view of the results of Cesarean section if the operation is generally adopted. I have had a large personal experience in Cesarean section—twenty operations—and I believe my training in abdominal surgery has been, possibly, rather exceptional for one who holds an official teaching position in obstetrics. For example, I was asked to give the gynecological clinics this year in the University Hospital during Prof. Penrose's absence. Selecting the worst cases in the ward as the most interesting for clinical demonstration, I have had a mortality in the abdominal sections of less than two per cent since the beginning of the collegiate year, or during a period of eight months. In spite of my training in abdominal surgery and in obstetrical operations, I do not regard Cesarean section as a safe procedure. There are a great many dangers inseparable from the operation, insuring it a considerable mortality in a large number of cases. If the section is done in a private house it is impossible to secure perfect asepsis, such as we obtain in our well-appointed hospital clinics. If the operation is to be popularized a large number must be done in private houses. If the woman is transported from her house to the hospital in labor she runs certain risks, as pneumonia from

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exposure, and the child incurs greater risk. Only a few days ago I was called to do a Cesarean section upon a woman with a scoliotic rachitic pelvis, but I found on my arrival that in the ambulance the cord had prolapsed a few inches, was nipped between the head and the pelvic wall, and had ceased to pulsate. If the operation is undertaken before labor has begun, at a specified time, so that arrangements can be made as for any other abdominal section, there are risks which will produce an occasional mortality. It is impossible, for example, always to secure thorough drainage of the womb unless the cervix has been dilated. Even thorough artificial dilatation at the time of operation will not always secure perfect drainage of the womb. If, on the contrary, one waits until labor has advanced sufficiently for a wide dilatation of the os, he operates under certain disadvantages. The woman has been examined; she has been subjected to chances of infection in the birth canal; she may be fatigued. The operation must be done at an inconvenient hour, with insufficient time for thorough preparation. Personally, I feel confident that Cesarean section will in the future, as it has in the past, show about the highest mortality of any of the obstetrical operations for the delivery of a woman in an obstructed labor. The mortality of all these procedures has been very much reduced of late, that of Cesarean section along with the rest, but the proportionate mortality remains the same.

The fetal mortality of Cesarean section, too, must show a result about comparable with the mortality of children born by the natural passage in a large number of unselected labors. I have never lost a child myself if I operated on the woman before labor and if the child was living at the time of operation, although I have seen children deeply asphyxiated after their removal from the womb, requiring some five minutes' hard work for their resuscitation.

As to the mortality of the other procedures for extracting children through pelves showing minor grades of contraction, I have not personally had the same experience that Dr. Reynolds has had and quotes: my fetal death rate in high forceps operations has not been more than 6 to 8 per cent. I have never had a maternal death from the high forceps operation. As for the induction of labor, I find myself at radical variance with Dr. Reynolds' views. To my mind *the* treatment of a moderately contracted pelvis is the induction of labor at the thirty-sixth week, and from the results secured at my hands by this plan of treatment I should consider myself entirely unjustified in waiting till term in a contracted pelvis with a conjugate of 8½ centimetres or under. I should consider it incumbent on me to induce labor at the thirty-sixth week, and I could not reconcile it with my conscience if I neglected to do so. I have had a very large experience in the induction of labor. I regret that my statistics are not complete to date. At one time I had a record of 150 cases in which labor was induced for various indications. That was some

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years ago, and the number now is considerably larger. I can speak advisedly, therefore, from this experience when I say that the mortality of children born four weeks before time through a contracted pelvis with a conjugate of 7¾ to 8½ centimetres or over is not as great as the average mortality of the fetus born at term in a number of unselected labors if the child is given proper attention. We are all agreed, I think, that the death rate in the fetus is ordinarily about 5 or 6 per cent; that about that number of still-births are to be expected in a large series of labors. I have not had nearly that percentage of still-births or children that died shortly after birth in my cases of induced labor. There is absolutely no maternal mortality in this operation. In all these operations which I have personally performed or supervised there has not been the slightest accident or complication in the mother. We are certainly not justified, therefore, in making the statement that Cesarean section gives a better mortality than induction of labor four weeks before term. If any intelligent person was offered the choice of a labor four weeks before term which would be perfectly safe and easy for the mother, and would have no higher mortality for the fetus than 5 per cent; or, on the other hand, a choice of Cesarean section with certain inseparable immediate dangers and a good many possible remote complications, an immediate mortality under the most favorable circumstances not under 2 or 3 per cent, and the chances for a living child not very much greater than would be secured by the induction of labor at the time stated, I think there could be no doubt as to the choice that would be made. I wish to express my firm conviction from personal experience in favor of the treatment of moderate grades of contracted pelvis by the induction of labor.

There is another point we should take into consideration, I think, in papers and discussions before these special societies —that is, the possible influence of statements in regard to the low mortality of certain operations upon the general practitioner. I feel myself that if the general practitioners throughout the country were stimulated to undertake Cesarean section the results would be really tragic. Dr. Harris, who knows more about the statistics of Cesarean section than any man in this country, will agree, I am sure, with the statement that the mortality in general remains extremely large in Cesarean section, the last mortality record he gave me for this country being 40 per cent. This was, I think, for the year 1896. Many of these operations have been undertaken in the last four or five years in the belief that they could be resorted to almost with impunity, and I know that the results have been very unfortunate in the hands of general physicians. I think that if the tendency to resort indiscriminately to such operations were more widespread, as Dr. Reynolds seems to desire, large numbers of women would lose their lives who might have been safely delivered by less radical means.

DR. C. P. NOBLE.—With the tone of Dr. Reynolds' paper in

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certain regards I am heartily in accord. One could but note the care with which Dr. Reynolds laid down his propositions and how guarded he was in all his statements; and I quite agree with him that in the class of cases referred to, and in the class of practitioners referred to, the mortality from Cesarean section would be very low, probably no greater than one per cent, as he said. As I understand Dr. Reynolds, he was not discussing the general mortality of Cesarean section as indiscriminately practised, but of Cesarean section in a particular class of cases—cases of contraction in which the forceps failed to deliver. As a matter of fact, I think there are statistics which are ample to bear out the statement referred to by Dr. Williams: Olshausen has had 27 Cesarean sections with 2 deaths; Zweifel had 22 cases with only 1 death; Sänger's mortality has failed to appear. So that I think that this being a general hospital experience, though not applied to a special class of cases discussed by Dr. Reynolds, quite bears out the very low mortality that would be present in these cases.

I am also heartily in accord with Dr. Reynolds as to destruction of children by indiscriminate use of forceps being discouraged. I believe this teaching will have a good effect upon the general practitioner. I think the day has gone by for such practice as I heard related when I first came to Philadelphia. The doctor, after applying the forceps, made traction in the usual way; then, if the head did not come, he pressed his feet against the bed to use his entire strength in traction; and this failing, a second doctor pulled on the first to insure something giving way.

On the other hand, I find myself in accord with the position taken by Williams, that in the particular class of cases discussed by Dr. Reynolds it is safer to resort to symphyseotomy rather than Cesarean section. My own experience with symphyseotomy and Cesarean section has been the same—I have had three of each. That has been sufficient to convince me that while Cesarean section is a simple operation for an expert, it is certain symphyseotomy is much simpler. As applied to it, the objections urged by Dr. Hirst concerning operations in private houses are sound, but would not apply to symphyseotomy. Therefore, for practical reasons it seems that in this class of cases, where deformity is not very great and the lack of proportion between head and pelvis is not great, the symphyseotomy is a safer operation than the Cesarean section. I confess that my own sympathies are not in accord with the experience of Dr. Hirst in reference to induced labor. It has been my fortune to see a number of deaths in children where labor had been induced four weeks ahead of time, and I am inclined to the belief that the welfare of the child is best secured by allowing the labor to go on to term and then do symphyseotomy rather than induce premature labor.

DR. R. C. NORRIS.—When I learned that Dr. Reynolds would present for discussion the management of labor obstructed by the lesser degrees of pelvic deformity, I examined

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the statistics of this work at the Preston Retreat, and will present these statistics for what they are worth. During my service there, which covers an experience up to the present time of 1,076 cases, I have had 25 cases of pelvic deformity with no maternal mortality. The external pelvic measurements are recorded in all cases, and when they are abnormal, in primæ gravidæ, and in all cases of multiparæ who have histories of previous difficulty, careful internal measurements are taken. I was quite surprised at the proposition advanced by Dr. Reynolds, as my own experience has taught me the value of induced labor, as well as the value of version and forceps, in managing cases of moderately contracted pelvis. In looking over my cases I find that I have 11 cases with conjugates ranging from 9 to 10 centimetres. Those 11 cases were delivered with forceps, all of the children being born alive. Three cases of obliquely contracted pelvis due to coxalgia were delivered spontaneously at term. I have here a table of 11 cases with conjugates between 8 and 9 centimetres (page 800). These cases have been reported elsewhere, and they, with eight other cases observed in private practice with equally good results, have convinced me of the value of induced labor. I should not consider for a moment that I had done my full duty to a patient to suggest the possibility of Cesarean section with a conjugate above 8 centimetres, if I saw the case before term, and at term I should hardly consider Cesarean section even as a last resort. The infantile mortality is of course an important question. When we have a conjugate between 8 and 11 centimetres and opportunity to induce labor, it is my conviction that the use of forceps in good hands or a resort to version will secure almost as large a percentage of living babies as we ordinarily expect to get from cases instrumentally delivered at term for such complications as posterior positions of the occiput or uterine inertia, and surely such complications would not indicate Cesarean section. I look upon forceps delivery with contraction above 9 centimetres as ordinarily giving no anxiety whatever. Aside from pelvic diameter, the question of the size of the child is most important. I have delivered one patient by version, and that patient has been delivered at a subsequent labor spontaneously, but there was material difference in the size of the child. I am surprised that in discussing this subject no one has referred to a means of considerable value for determining the relative size of the child's head to the pelvis. It is an invariable rule with me, when the patient is in active labor, to note the distance of the sagittal suture from the promontory of the sacrum. Where I find this difference more than 1½ to 2 centimetres I feel quite sure that the case will be successfully delivered by instrumental or manual aid. As this obliquity increases, carrying the sagittal suture closer to the promontory, I feel, of course, that the relative size of the head is great and indicates a serious obstacle. The value of the Walcher posture during forceps deliveries and when extracting the head after version I have repeatedly verified. When

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	Conjugate diameter.	Method of delivery.	Biparietal diameter.	Weight.	Infant mortality.	Remarks.
CASE I. (No. 3601).	8 5 cm	Version; at term.	9.75 cm.	9 lbs.	Died.	Autopsy: rupture of lateral sinus.
CASE II. (No. 4005).	8 5 "	Version; labor induced two weeks before term	8 "	7 "	Living.	
CASE III. (No. 3719).	8 "	Symphyseotomy; at term	9 "	7¼ "	"	
CASE IV. (No. 3841).	8.5 "	Forceps; labor induced at term.	8.5 "	5 "	"	
CASE V. (No. 3851).	8 5 "	Spontaneous; labor induced two weeks before term	9 "	7⅛ "	"	
CASE VI. (No. 4112)	8.5 "	Version; labor induced two weeks before term.	8¾ "	8 "	Died....	Delivered by assistant; chin locked above symphysis; craniotomy after child perished.
CASE VII. (No. 4119).	8.75 "	Spontaneous; labor induced ten days after term	9 "	7½ "	"	Prolapsed cord; puncture of amnion by bougie; large spina bifida.
CASE VIII. (No. 4408)	8 "	Version; labor induced three weeks before term.	8 "	6½ "	Living..	Case (No. III) previously delivered by symphyseotomy.
CASE IX. (No. 4478).	8 5 "	Spontaneous; labor induced two weeks before term.	8 "	6¼ "	"	
CASE X. (No. 4516).	8 "	Version; labor induced three weeks before term	9 "	7 "	"	
CASE XI. (No. 4527).	8.75 "	Spontaneous; labor induced two weeks before term.	8½ "	6¾ "	"	

Summary:

Induced labors, 9.

Induced labors followed by version, 4. One infantile death (Case VI.).

Induced labors followed by forceps, 1.

Induced labors followed by spontaneous delivery, 4. One infantile death (Case VII.).

Version at term, 1. One infantile death (Case I.).

Symphyseotomy at term, 1.

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Dr. Reynolds asserted that "when a woman gives a history of difficult labor she should be prepared for a Cesarean section," a case recurred to my mind. I successfully performed symphyseotomy at term upon a patient whose first child had been destroyed by craniotomy. She returned and had a living child spontaneously delivered after induced labor. The fact that we can successfully induce labor and insure the success for the child by employing incubation and gavage makes me ready to believe that the chances for the child are quite as good as for children ordinarily born at term. I wish to lay emphasis upon the proper care of the infant. Many cases abroad are discharged eight or ten days after delivery—a particularly bad thing to do where labor has been induced—and the child is supposed to be capable of enduring the same hardships as a child born at term; but in our institutions where patients are kept from two to four weeks, and where, by the above-mentioned care, the child gets a fairly good start in life and is breast-fed, I think statistics will show that the mortality has been only a trifle greater than in children delivered at term. There is no problem in practical obstetrics more difficult than this one of minor degrees of pelvic deformity. If the pelvis is above 8 centimetres and the case is seen before labor, induction of labor two to four weeks before term is always desirable. If seen at term, then perhaps the question of symphyseotomy might arise, but only when the conjugate diameter is less than 9 centimetres or the child's head is known to be abnormally large and hard. In a great many cases above 9 centimetres we can deliver by less serious means. It is interesting to note the following statistics of Budin in *Le Progrès médical*, April, 1893: Budin records 78 cases with a conjugate of 10 centimetres and over, of which 68 were spontaneous births; 28 cases, conjugate 9 to 10 centimetres, 15 unaided deliveries; 20 cases, conjugate 8 to 9 centimetres, of which 15 were delivered naturally; there were no maternal deaths, and 8.3 per cent mortality for the children. Of the children delivered artificially none died. It is the duty of the obstetrician to know the size of the pelvis and to have as accurate knowledge as possible of the size and compressibility of the child's head, and, if induced labor can be performed, let that be the operation of choice.

Dr. George M. Boyd.—With the ability to select cases and the selection of proper surroundings, the low mortality which Dr. Reynolds gives us is about right. It does not seem to us that we can get the surroundings; it does not seem to me, if the operation becomes a general one, we will be able to select the operators, and, necessarily, a higher maternal mortality will result. From the gist of the discussion it seems that we must make labor the test in many cases. So that it would seem wise, in all doubtful cases where the Cesarean operation is not positively indicated, to let that patient fall in labor, watch the first stage of labor, and be prepared, after having given the patient some chance to deliver herself, to do the Cesarean operation. In

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the moderately contracted pelvis it seems to me it would be better to occasionally induce premature labor, resort to forceps or symphyseotomy, rather than select the Cesarean operation. My experience with induction of premature labor has not been as favorable as the experience of Dr. Hirst and Dr. Norris. and probably the reason for this is due to the fact that I cannot fix upon the time. The difficulty is in selecting the thirty-sixth week, and then, unfortunately, we have not at our command a good method of inducing labor. With those dangers that we must meet with, it seems to me that the induction of premature labor will not always be the wise procedure.

DR. EDWARD P. DAVIS.—I am heartily in accord with Dr. Reynolds in thinking that labor is the test of possible delivery through the natural passage. We know also that the age of the patient affects considerably what can be done to help her by posture and other means during her labor. In young women it is sometimes possible, by putting the patient in Walcher's position, to deliver the child with axis-traction forceps when otherwise such a result could not be obtained.

In the recent case of a young girl having a pelvis whose true conjugate was scarcely 8 centimetres, it was possible, by putting her in Walcher's position and using the Tarnier forceps, to bring the child through the pelvis. A very extensive episiotomy was done and injury to the pelvic floor thus avoided. The child weighed eight pounds, and the mother and child made an excellent recovery. I doubt if such a delivery could have been made in a woman 35 years old.

Dr. Reynolds does not mention symphyseotomy in contracted pelves, and our experience teaches us that certainly there is a field for this operation. It is simpler, less dangerous, and very efficient in proper cases, and its success depends largely upon the good judgment of the obstetrician who selects symphyseotomy before making prolonged and useless efforts with forceps.

The subject of Cesarean section is again made complex by the fact that the obstetrician is called upon to decide whether he will render the woman incapable of further pregnancy; should this be necessary, celiohysterectomy should be performed in place of celiohysterotomy.

Success or failure in an obstetric operation depends, in the hands of competent men, largely upon the selection of an appropriate operation for a given case. The actual result of all modern obstetric operations under good conditions is very favorable. In examining the records of over 600 cases of labor which we have recently had at the Jefferson Maternity, we found it necessary to apply the forceps in the pelvic brim 18 times. The instrument used was either Tarnier's or Simpson's forceps with axis-traction tapes. Six of these cases were especially complicated, and some of them were terminated by symphyseotomy in addition to the use of forceps. But three of the children in these cases perished, and in none of them did the forceps inflict serious damage upon the child. In one case, in which the child was lost, labor was induced to avoid serious

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complications. The placenta was prematurely separated and the child perished from hemorrhage and asphyxia. Another case having contracted pelvis came into labor spontaneously with violent contractions of the womb. Before she could be delivered the child had perished. An autopsy showed that birth pressure before delivery was the cause of fetal death. Another case was delivered with difficulty, and in this also it was found by autopsy that prolonged birth pressure before extraction resulted in the death of the child. Our experience shows very clearly that in complicated labor delay is more dangerous than any well-chosen operation performed to save the lives of mother and child.

Our experience embraces 8 symphyseotomies and 10 Cesarean sections. These operations have not been performed upon selected cases, but some of the patients have been those on whom it became necessary to perform an operation during labor, although this necessity was not evident at the beginning of labor. So far as Cesarean section is concerned, there seems to be no practical difference in the recovery of patients on whom celiohysterectomy or celiohysterotomy is performed. We agree with what we understand Dr. Reynolds' position to be—viz., that in the hands of obstetricians of modern training and fair experience, under circumstances where proper assistants can be secured, it is safer for mother and child, when labor cannot proceed naturally or without difficult extraction, to deliver the patient by abdominal and uterine incision. It seemed to me that Dr. Reynolds limited his argument very carefully in its application to cases. I do not believe that a group of specialists should influence the general practitioner to undertake serious operations. Obstetrics occupies a peculiar position in medicine. It is a branch of medicine the practice of which has been for years relegated to medical students and dirty midwives, yet a complicated delivery requires the skill and care demanded by an experienced surgeon. If men who are anxious and willing to open the abdomen for other causes would give to the complicated obstetric case the same study, preparation, and care which they give abdominal sections, the mortality of complicated labor would be very much reduced. If Dr. Reynolds' paper can lead the general practitioner to call a consultant so soon as the natural mechanism of labor halts and before he has applied the forceps, it will render a great service and one which I believe its author intends.

DR. REYNOLDS.—I do not know whether it will or will not surprise the Section when I say that, with the exception of the favorable results reported on the induction of labor, which do not agree with my own experience, I am in accord with almost everything that has been said here to-night. I would like to read a paragraph from my paper which explains this statement:

"I wish once again to urge upon you that I restrict myself entirely to the question of the Cesarean as opposed to more than usually difficult, but not necessarily hopeless, high forceps or version in women not exhausted by long labor and under the

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care of experienced men. It is essential to a fair consideration of my position that you should remember these limitations."

Most of the gentlemen who have spoken to-night have urged two points: first, that a pelvis with 3½ inches in the conjugate is not necessarily a Cesarean pelvis; second, that the general mortality of the Cesarean section is far greater than I have stated. I wish to reply to these two points. I would not have it held for one moment that I thought that labor in pelves of this character should usually result in the application of the Cesarean section. I wish that I had carried out my first intention of not mentioning pelvic measurements in the paper. I only put in pelvic measurements for fear that I might be considered as advocating Cesarean section for uncontracted pelves. I believe that there are few men whose acquirements justify them in taking upon themselves the responsibility of deciding beforehand that a given labor must be Cesarean in a case in which the measurements are not extremely small. Were I restricted in the formation of my opinion to mere matters of measurement, I should not put a case as necessarily in the Cesarean class if its conjugate were over three inches, but I do believe that when cases with moderate contraction are allowed to go into labor an experienced obstetrician can tell, by the progress made by the patient during the second stage of labor, whether he is liable or not to meet an unusually difficult forceps operation. If he is in doubt he can make a tentative application of the forceps. After finding out by this means that he is likely to have unusual difficulty, I believe that he will save many more children by the Cesarean section than by forceps.

With regard to the second criticism, that I have placed the maternal mortality too low, I quite agree with Dr. Williams and Dr. Duer and other gentlemen as to the general mortality of the Cesarean section as reported in literature. I recently looked over all the Cesarean sections I could find in literature, the list giving a very large mortality. I applied to this list the principles of selection, and failed to find a single death, with the exception of one from sepsis, my list including some 80 or 90 cases of the class to which I restrict myself. In my paper I did not base my statements upon this statistical study, because I believe that the statistical method can be made to prove anything. I make the smaller list of 22 cases with which I am personally acquainted the basis of my belief that a further popularization of the Cesarean section, in the hands of experienced men only, will lead to the same change in operative results, as compared to the old use of the section in unfavorable circumstances, which the selection of cases and improvement in technique has produced in the mortality of hysterectomy for fibroids as compared with that of hysterectomy ten years ago. One thing Dr. Williams said interested me—that he did not think it would be possible to apply the Cesarean section to private practice, on account of the objections of the patients. Our Boston work has created a rather unreasonable desire for the

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Cesarean section among the women of the better classes there. Several of my patients have said to me, "Why don't we all have Cesarean section? It seems to be much the easier way of having a baby." I do not believe the section will meet with the difficulty which Dr. Williams anticipates.

As regards the point raised by one gentleman, that we might find that the child has died during the delay incident to making the preparations for the Cesarean section, and that we may consequently find that we have done an unnecessary operation, I would say that I always have the tip of a stethoscope sterilized and put upon the fetal heart immediately before making the incision.

As regards the risks incident to operating in private houses, I should reproach myself bitterly did I think that anything I have said would lead any man to dream of such a thing as doing a Cesarean section without making the necessary preparations, because he was confronted with the necessity of operating during the course of labor. I have found that my assistants can prepare a private house for an abdominal operation in the course of an hour in such a way as to make it quite as safe as a hospital. It is only a question of possessing trained assistants and the necessary kit. As a matter of fact, a great deal of my gynecological abdominal operating is done by choice in private houses, and, if the circumstances of the case permit the time for making adequate preparation, I should not consider a private case less favorable than a hospital one. Of course, in the present state of practice, we must expect in primiparæ to have many cases in which the failure to anticipate any difficulty, and the time that would be lost in getting the patient ready for a Cesarean operation, will oblige us to take what chances we have with the forceps. I think that my feeling in the whole matter can better be put by saying that labor is the chief test of the amount of difficulty which will be experienced in an ordinary delivery, and that in multiparæ much must depend upon the history. I think that when a multiparæ has lost even one child with the forceps, preparation for the Cesarean section should be made in advance the second time and the forceps used or a Cesarean done in accordance with what the second stage of her labor shows.

One criticism I am forced to admit—that is, that I have wholly neglected the consideration of the operation of symphyseotomy.[1] My own view has been that symphyseotomy was an operation best reserved for the cases in which there was some contraindication to the Cesarean, in which the case has been already infected, in which there is renal suppression or some visceral condition which makes an abdominal operation inadvisable.

With regard to the danger of popularizing the operation too rapidly, a point upon which I agree with much that Dr. Hirst has said, my feeling is that it is our duty as specialists to spread

[1] A few words covering this point have been inserted in the paper since it was read.

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as widely as possible the opinion that children must not be sacrificed to the persistent use of forceps, whether difficult or not, in repeated pregnancies in the same woman. We should teach the practitioner to refer the question of what should be done in such cases to some one more experienced. If, however, his consultant advises him to have a Cesarean, I believe that any fairly trained abdominal surgeon may do it when it comes to the point. If the consultant advises the physician to let the case go into labor and then decide between the Cesarean section and forceps during the second stage of labor, I think that would be the time when the same consultant would naturally step in again to decide that question.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, Friday, May 21, 1897.

The President, GEORGE BYRD HARRISON, M.D., *in the Chair.*

DR. GEORGE WYTHE COOK read a paper entitled

MEMBRANOUS DYSMENORRHEA.[1]

DR. H. L. E. JOHNSON said: It is important to bear in mind that membranous dysmenorrhea may occur in virgins, and the presence of membrane in the discharges sometimes subjects the patient to ugly and unjust accusations or suspicion. I saw, when connected with the Columbia Hospital, a complete cast, unbroken, of the uterus, and also one of the vagina. These were kept for many years in the library as interesting specimens. Sterility is frequently coincident with this condition. I have under treatment now a patient suffering from membranous dysmenorrhea who also passes casts from the bowel at the same time. The passage of membrane should be closely observed and examined histologically, to differentiate it from early abortion. The cause of this condition is a coexisting disease of the submucous blood vessels, which results in submucous hemorrhage and thereby causes the detachment. Treatment is often unsatisfactory and the condition chronic.

DR. I. S. STONE said the position of the uterus in the case reported was against recovery. Tait had recommended oöphorectomy as a means of cure. The general good health of the woman perhaps justified the treatment in this case.

DR. F. S. NASH said: The subject of Dr. Cook's able paper is one of great interest to me, possibly because we know so

[1] See original article, p. 786.

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little of the real nature of the disease as to place our ideas of it almost in the field of speculation. The case cited by Dr. Cook would probably be greatly benefited by treatment, but there are a large number of cases in pure, chaste girls, alluded to by Dr. Johnson, without any history of child-bearing, and in these we could really hope to do very little. In them it seemed to be due to some nervous cause, and in these cases Nature, in the performance of her functions, takes a step too far.

As regards the statement of Dr. Stone that we could cure no cases, there is one reported cured by Dr. Mundé, in which he dilated, curetted, and applied nitric acid to the uterine cavity, repeating the last at intervals of a week three times. He rather apologizes for the radical treatment by saying that as the patient was cured and satisfied, and that as he was gratified with the result, no one else could object.

Dr. W. Sinclair Bowen said: About six months ago I operated upon a patient with chronic salpingitis and retroversion of the uterus, by celiotomy, removing the diseased appendages and doing suspensio uteri with very satisfactory results, as the uterus remains in normal position and the patient has been relieved of her menstrual periods, which had always been very painful and very profuse, although she was past 45 years old when operated upon. This patient is the mother of several children, and always suffered with membranous dysmenorrhea, which was not improved after several normal deliveries. About ten years ago the uterus was thoroughly curetted and a lacerated cervix repaired, after which her periods were as profuse and painful as ever, although no membrane has since been passed with any menstrual period, pain continuing as severe as before. Two years after the operation just referred to she had a normal delivery, but continued to suffer with dysmenorrhea and menorrhagia until her recent celiotomy, since which time she has had no pelvic symptom and is gaining health and strength steadily.

Dr. George Byrd Harrison said he thought that Dr. Nash's theory that membranous dysmenorrhea was of neurotic origin was very plausible.

Dr. E. L. Tompkins said that *apropos* of the suggestion that membranous dysmenorrhea was of neurotic origin, he would relate a case which he had seen in consultation, in which, in addition to passing a membrane, the patient had maniacal attacks at her menstrual periods. She was anxious to become a mother, but she never did, nor was her disease cured. He had never heard of a case of membranous dysmenorrhea being cured.

Dr. William M. Sprigg said he had seen two cases of membranous dysmenorrhea and one of membranous diarrhea which he thought were of neurotic origin. He treated his cases of membranous dysmenorrhea by curetting and cauterization, with the effect that they were relieved for several months, but the difficulty returned. One of them suffered with such alarming hemorrhage as to require tampons for its arrest.

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DR. GEORGE WYTHE COOK said the results of treatment in membranous dysmenorrhea were generally so unsatisfactory, and his patient having always suffered from dysmenorrhea and her general health being so good, he thought it better to omit any very active treatment.

Stated Meeting, Friday, June 4, 1897.

Vice-President GEORGE N. ACKER, M.D., *in the Chair.*

DR. SAMUEL S. ADAMS read a paper entitled

TETANY IN INFANTS.[1]

DR. WILLIAM P. CARR said he had never seen a case that he would call tetany, though he had frequently seen in children convulsions due to gastro-intestinal irritation. Children were much more liable to convulsions than were adults. Where there was a predisposition to convulsions, as in epilepsy, overeating was an exciting cause. Any irritation or distension of the stomach may cause convulsions in a nervous child.

DR. M. F. CUTHBERT said he felt under obligations to Dr. Adams for the interesting paper he had presented. He had seen no case of tetany, but many of convulsions in children.

DR. GEORGE N. ACKER said he was doubtful about the classification of tetany as a distinct disease. Rachitic and nervous children were very liable to convulsions, and what were called inward convulsions might be classed as tetany, and many of the cases of slight convulsions were similar to them. He related the case of a child that had many convulsions occurring with the eruption of each tooth. He had lanced its gums as often as twenty times, which, with the administration of bromides, did much good.

DR. WILLIAM P. CARR asked what constituted a distinct disease. Puerperal fever was caused by different germs, and until we could get a better classification we would have to use such terms.

DR. S. S. ADAMS said if we should go into the nomenclature of diseases we would open a wide field. Tetany was characterized by a number of symptoms. They were unlike infantile convulsions. In the onset of tetany there was a piercing scream, consciousness was not lost, the child's fingers were extended and the thumbs drawn across the palms. He agreed with Dr. Acker that if cases were more carefully observed many more would be reported. It was not a fatal disease in itself. It was due to an aggregation of nervous manifestations. He desired to thank Dr. J. S. Wall for having abstracted the cases included in the report.

[1] See original article, p. 772.

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Stated Meeting, Friday, October 1, 1897.

Vice-President GEORGE N. ACKER, M.D., *in the Chair.*

The President, GEORGE BYRD HARRISON, M.D., read the annual address:

A PLEA FOR GREATER CAUTION AND CONSERVATISM, AND LESS SENSATIONALISM, IN THE DIAGNOSIS OF DISEASES OF INFANCY AND CHILDHOOD.

This age of ours, this "end of the nineteenth century," abounds in such amazing discoveries, startling methods, and astounding results of human effort that the average individual is in danger of losing his individuality altogether. He hesitates to form an opinion, much less venture a criticism, of any proposition, however simple, or, on the other hand, however wild or even preposterous it may appear to his individual comprehension.

The science of medicine "up to date" presents no exception to the rule. Just as in the business world it is deemed convenient, if not necessary to success, to sink personal identity, smother individual conscience and responsibility, and delegate all authority to some "round-robin" organization whose *ægis* shields from censure and protects from untoward consequences, so in the medical world we are fast tending to a condition in which individual intelligence and acuteness shall give place entirely to machine methods of diagnosis, and, of all else, even to treatment itself. The student is instructed in this man's "method" of managing one disease, and another one's of another, the analysis of the case to be always dependent upon, and determined by, some doctrinaire's fixed, hide-bound scheme or accomplished microscopist's finding, whose infallibility we may not even be allowed to call in question; variations in type or severity of disease, or complications existing in the especial case presented, climatic and seasonal influences, all counting for nothing whatever in the eyes of the poll-parrot practitioner, so long as he carries out the routine plotted for him by some particular ideal—nay, idol—authority, albeit of mushroom origin and spurious reputation, behind whose name and fame he may shelter himself from all blame, or even criticism, in the event of failure and disappointment.

As if any fixed "method" could by any possibility be adjusted or applied to the relief of conditions resulting frequently from a combination, and in some instances from a contention, of pathological forces distinctly, perhaps widely, different from each other!

The picture is not over-painted, in proof whereof the conscientious teacher of to-day must sedulously examine the text book he recommends before daring to place it in the hands of the student, however many claims to distinction appended to its author's name adorn the title page thereof.

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By way of illustrating the "heroics" to which we are treated in the standards, let me refer to the suggestion made by a recent author of pediatric prominence, *apropos* of easily mapping out the dilated stomach of an infant by percussion, that we should administer alternately the blue and white papers of a Seidlitz[1] powder, so as to distend the suspected organ and put it "on the stretch," as it were. I have known of giddy schoolgirls playing this prank on each other with well-nigh fatal effect, but never dreamed that it could be seriously contemplated by an adult, much less a grave professor, who doubtless must have jested before his class and subsequently used the notes of a student for a chapter in his text book, for thus are many of the medical guides (in all probability) compiled. Imagine the effect of such teaching upon the mind of some receptive and over-credulous, unsophisticated disciple! But this is only parenthesis; let us return to the subject.

A Nestor[2] in medicine whom you all know, one who has kept abreast of the times in a proper sense, notwithstanding his medical career has passed over several decades and his active experience been correspondingly extensive, told me one year ago that he had never known the profession as "wild" as now, never as ready to accept crude dogmata and as quickly relinquish these to fly to "others they know not of." We can each recall many a fad in the past few years, accepted as gospel because of the initiator's reputation, "run to earth" in an incredibly short time, only to give place to others with the same or similar indorsement. One year ago those of us who predicted that the X-ray was too potent an agent to be danger-free if used carelessly were regarded as "old fogies" and compelled to await the arbitrament of time—a shorter wait than we anticipated.

But the danger to be suggested in this article is one which recent experience in our own community has emphasized most strongly—viz., that of over-hasty and careless diagnosis of children's diseases. God only knows to what an extent this vitiates records and retards real therapeutic progress by throw-

[1] If I am mistaken, and the author of this suggestion meant to be serious, I would recommend to him an expedient with which I have become familiar in the last two days

Being called to a girl of 14 years, I was told that on Sunday evening last she experienced a violent chill, which was followed by high fever and delirium. As her residence was in a distinctly malarious quarter of the city, I diagnosed intermittent and treated accordingly. Abdominal tenderness was general, not confined to the popular area (of appendicitis), and she received symptomatic and ordinary anti-malarial treatment, with resulting recovery. I omitted to state that the conjunctivæ were very distinctly yellow.

I have since ascertained that an enterprising boy neighbor had introduced a bicycle pump between her lips and injected her with air almost to the point of bursting the alimentary canal.

Now, this process is more reasonable, measurable, and controllable than the Seidlitz powder method, and the author quoted might find it very useful in his child practice, especially in cases of dilatation of the stomach.

[2] Who has now gone to his rest since the above was penned.

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ing us upon false trails, to say nothing of injury done to the particular community under suspicion. The younger members of the profession appearing among us every day need frequent caution in regard to this matter; and from no source in this community can it come with the same authority and force as from our own Society.

But before precept we should see to our example. One year ago a highly esteemed Fellow of this body—one whom it is far from my intention to criticise personally, since he was merely following precedent in such cases—told me that the diphtheria sign on the home of one of his little patients was placed there against his judgment and contrary to his diagnosis. Now, I submit that this should never occur, at least without due protest on the part of the attendant. The office delegated to, and the trust imposed upon, the family physician are altogether too sacred to be thus lightly regarded and executed. No fear of fine, abuse, or even imprisonment should prevent our protecting the family which has been entrusted to our care from treatment so unjust, whether viewed from a moral or financial standpoint. The experience and qualifications of health officers and their agents, as usually constituted (I disclaim any particular reference), are not such as always to entitle them to the position of diagnostician-in-chief—the official plum being very frequently a political award or friendly appointment. Surely it is our duty to resort to more generally recognized, discriminative authority in such especial cases as may happen to be under suspicion, before calling upon the average health official for an opinion. And it may be considered certain that no one of the older members of our profession, however busy, would be unwilling to lend a helping hand if requested by a brother of less experience to do so. It is so easy to create a panic in regard to diseases of suggested communicable character! So hard to lay the spirit when once called up! But, worse than all, there are so many ghouls and wreckers waiting for an opportunity to carry out designs more or less dependent upon the creation of a state of general excitement and alarm!

The plan which I have recommended involves no neglect of precaution, for I hold that no honest practitioner who has a doubt as to his case being infectious or contagious will fail on that instant to institute and, so long as his case is *sub judice*, keep up as veritable a quarantine as any health officer could do. If he respects himself and is otherwise than a "hired servant," he will do so. He will also without delay seek advice to establish or allay his fears and to guard against possible disaster to the community at large.

The developmental peculiarities of infancy and childhood bring about such modifications of pathological states that it is not at all remarkable that we should incur much difficulty in sharp diagnosis, especially in the beginning of an attack. If this be true of us who have toiled for years in the especial field, what must it be for him who has but recently assumed the task, or for him who but rarely is called upon to undertake it!

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In some cases the microscope affords invaluable aid, but only in the hands of a microscopist. Not every one who uses the instrument is worthy of that designation, and frequently we learn to our cost that in this direction, as in others, "a little knowledge is a dangerous thing."

Some years ago I was fortunately instrumental in saving a patient from a capital operation, in whose case a microscopist had diagnosed a growth of indubitable malignancy, by sending him to an expert in a distant city.[1] The latter deprecated operation, finding no evidence of the condition alleged, and advised me to treat on the same line as before, with the result that the patient in due time made an excellent recovery.

But if that priceless instrument, whose accurate use has done so much for us and for humanity, fails from careless or ignorant handling in an instance of this sort, what may we expect when secretions like those in suspected diphtheria are under consideration and examination—a disease whose characteristic germs, in the present state of our knowledge, are indistinguishable from such as may occur when no diphtheria exists? Here there may be no careless use of the instrument, no error as to the objects discovered, and yet it is unsafe to draw absolutely positive conclusions from their presence. In such instances we must do our best. Err on the safe side, but avoid sensational declarations—declarations which may prove unjust to our constituency, disastrous to the community at large, and productive of no legitimate fruits whatever. My experience in the past six months has shown me that a form of varicella, making its appearance first in the pharynx, may so closely simulate diphtheria in the beginning of the eruptive stage as to deceive the "uninitiated" completely. Dr. Emmett Holt, in his recent elaborate work on "Diseases of Infancy and Childhood," has alluded to a similar condition resembling "herpetic stomatitis." Our Dr. Deale will recall certain peculiar cases of varicella at the Washington City Orphan Asylum some years ago, under the care of my colleague, Dr. Collins—cases whose complete course negatived any possibility of error in diagnosis, but which at one stage were alarmingly suggestive of variola. One or two of these were distinctly confluent on certain portions of the body. On the other hand, we all remember the sad consequences which, not very long since, attended a failure on the part of certain practitioners in our midst to recognize variola in a case of supposed varicella, diagnosed and treated as such.

These errors of our brethren—whether "orthodox" or not, as measured by our standard—should "give us pause," render us more charitable, but, at the same time, more *intelligent*, and, by the same token, more FAITHFUL to the people who *trust us*.

It would seem that there is a crying necessity for more thorough and conservative, and less sensational, methods of

[1] Dr. Garretson, of Philadelphia.

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diagnosis, especially in the department of therapeutics to which we are referring now.

Our motto should be, "Let justice be done to each party concerned in our work, whatever betide us or them."

Our position ought to be one of strict impartiality to our constituents, the community. and ourselves. But it is monstrous to seek security for ourselves and our reputation, whatever that may be, by disregarding the slightest of the rights and prerogatives of those who have taken us into their most sacred confidence, relying upon our personal honor and our calm, unbiassed judgment.

In the words of that peerless Christian hero, Stonewall Jackson, we should "never take counsel of our fears."

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of May 4, 1898.

The President, C. J. CULLINGWORTH, M.D., *in the Chair*.

Specimens.—MR. TARGETT: Intestinal obstruction following ovariotomy. DR. PETER HORROCKS: Fibromyoma of the uterus with sarcomatous degeneration. MR. ALBAN DORAN: Hemorrhage from the Fallopian tube without evidence of tubal gestation.

DR. HUBERT ROBERTS read a paper on a case of

PRIMARY CARCINOMA OF THE FALLOPIAN TUBE.

The patient, age 43, had been married seven years, but had not been pregnant. She had been in good health till March, 1896, when she had a violent attack of abdominal pain accompanied by a vaginal discharge. Other similar attacks occurred in July and November, and gushes of watery fluid were noted. On admission in February, 1897, the patient was thin, and the uterus was displaced to the left side by a fixed mass, the size of a hen's egg, felt in the right fornix, not tender. There was a watery vaginal discharge. The right tube, enlarged to the size of a Bologna sausage, was removed by Mr. Meredith on February 24, 1897. It was full of a papillomatous-looking growth, which microscopic sections showed to be carcinoma. Reference was made to published cases of primary carcinoma of the Fallopian tube Removal was advocated, the prognosis being by no means gloomy.

MR. ALBAN DORAN gave a short history of the literature of primary carcinoma of the Fallopian tube, with a table of the twenty-three cases published up till April, 1898, to which he

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now added a twenty-fourth case, reported by Jacobson in *La Gynécologie* for April, 1898. The tube was removed through a vaginal incision, and, as in other reported cases, the uterine end was free from disease. The patient was sterile, and it was interesting to note that out of the twenty-four cases only three had borne as many as three children. Mr. Doran had recently operated on a woman, age 45, who had been twelve times pregnant. On March 13 she had an attack of labor-like pains, a similar seizure occurring two days later. With each pain much water escaped, till at length she was drenched as in an ordinary labor. A large, tender mass could be felt in the right fornix, and a smaller body on the opposite side. The symptoms suggested papilloma or cancer of the tube, but he simply found tough, tortuous tubes, with their canals undilated, closely adherent to the uterus and adjacent structures. Mr. Doran believed that primary cancer was commoner than papilloma of the tube, or that the latter was very liable to malignant degeneration. Of seven authentic cases of papilloma two had died of the operation, whilst one (Watkins, New York) was very recent; Kaltenbach's case (No. 3 in the tables) had proved malignant; whilst the earliest of all papilloma series (Spencer Wells, 1879) was alive and in excellent health in 1897, though the clinical symptoms before operation were very grave. He agreed with Dr. Stevens that cancer of the tube might arise from Wolffian tubes included in the tubal wall (Von Recklinghausen). In order to gain as precise knowledge as possible about recurrence, Mr. Doran had communicated with all the authors of cases where the report was incomplete. As for surgery, removal of the tube alone through the vagina seemed questionable, as the state of surrounding parts could not readily be ascertained. Watkins and Schauta removed the uterus with the cancerous appendages. This operation is questionable, however, when the uterine end of the tube is free from disease, and useless when the outer end has infected structures to which it has become adherent.

DR. PETER HORROCKS pointed out that carcinoma of the cervix was common and nearly always occurred in parous women; carcinoma of the body of the uterus was much rarer and occurred chiefly in multiparæ; whilst carcinoma of the Fallopian tubes was the rarest of all and occurred in sterile women chiefly. He thought that clinical evidence showed that tissues which were used much and were liable to damage were more prone to carcinoma than others, and this rather favored the idea that carcinoma was due to, or in some way associated with, a microbe which would first meet with the cervix, and, if that were damaged (split cervix), elect the damaged part for its growth; but if it were a multiparous cervix, then the microbe might travel into the body or Fallopian tube. It was better to remove this growth in the tube by abdominal than by vaginal section.

DR. AMAND ROUTH alluded to the difficulty of diagnosis. In Case 2 in Mr. Doran's table, which had occurred in his own

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practice, and in the majority of those in the table, there was usually early, continuous pelvic pain simulating acute salpingitis with slight perimetric extension; and when this was associated with sanious, often offensive discharge, together with a tubal swelling, the diagnosis of some new growth in the tube was probable, and fairly certain if by a preliminary dilatation the uterus could be excluded as the source of the discharge.

DR. ADDINSELL drew attention to the fact that in nearly all the recorded cases the most noticeable clinical features were pain and watery discharge, and pointed out that the presence of these symptoms could not be considered pathognomonic of either primary carcinoma or papilloma of the tube, as they occurred in some cases of hydrosalpinx.

DR. GILES drew attention to the unfavorable prognosis in cases of cancer of the Fallopian tube. Of the 23 cases in Mr. Doran's table, in 2 no operation was performed or it was incomplete; in 2 which recovered the patient was lost sight of; in 2 the operation was fatal; of the remaining 17 cases, recurrence took place in 10, the time of recurrence averaging six to eight months after operation. Of the 7 cases reported as remaining well there was only 1 that could be safely pronounced to be cured (seven years after operation); in the others the time was too short to allow of a positive statement, the longest time being nineteen months.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

The Heart in Normal Pregnancy.—H. Vaquez and M. Millet[1] hold that the frequently accepted view that pregnancy causes a cardiac hypertrophy is erroneous. In 31 cases examined by them the area of cardiac dulness was increased in 7 instances, and in each of these a definite cause for the enlargement existed. They admit that modifications in the rhythm of the heart, and even temporary dilatations, may occur. In the diseased heart normal pregnancy undoubtedly aggravates existing conditions, but the authors do not believe that fatty degeneration and myocarditis account for the accidents occurring during pregnancy. In three cases which they studied there were exaggeration of the striation with swelling of the nuclei, or atrophy and disintegration of the cells, and also dilatation of the capillaries and even myocardial apoplexies, most marked in the right side of the heart, particularly in the right auricle. They believe that these are due to disturbance of the cardiac circulation rather than to myocarditis, and attribute them to the non-establishment of an equilibrium between the intracardial circulation and the pulmonary circulation, which is known to increase in activity during the latter months of

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pregnancy. The severity of the symptoms in cases of mitral stenosis is mentioned as serving to support this view. For the avoidance of cardiac troubles during pregnancy rest in bed and a milk diet are recommended, but some moderate exercise should be taken daily, and an absolute diet of milk is demanded only when signs of renal or hepatic congestion appear. If general symptoms of cardiac insufficiency supervene digitalis is indicated; but if the pulmonary circulation is especially disturbed, as in mitral stenosis, absolute rest in bed, milk diet, hot applications over the chest, and theobromine or Dover's powder internally give the best results. If severe symptoms are present after the sixth month and do not diminish after a month or six weeks of treatment, premature labor should be induced. Chloroform should be used in natural or induced labors in patients suffering from cardiac lesions. In cases of cardiac affections depending upon mitral stenosis digitalis acts unfavorably; and if the interference with the pulmonary circulation persists after labor, hypodermatic injections of morphine are most satisfactory. Marriage may be permitted if the cardiac lesion is simple and not causing symptoms, but should be strongly opposed if it has already caused attacks of cardiac insufficiency or if there is probably a marked mitral stenosis.

Renal Infections during Pregnancy.—O. Pasteau and J. D. d'Herbécourt[2] discuss the treatment of renal infections during pregnancy. They state that lumbar incision and drainage should be employed only when milder measures fail or when rapid relief is demanded. If the ureter is kinked this may be relieved by pushing up the kidney, or by placing the patient upon her back with hips elevated so as to allow gravity to act upon the kidney. If the ureters are compressed they may be catheterized, unless the bladder is distorted by the pregnant uterus; in the authors' case this interfered. After curing an existing cystitis they relieved the renal infection by momentary distension of the bladder, repeated daily. They insist that this must not be kept distended, as this would favor an ascending infection, and must be repeated to be really useful. They can explain the action of this method by supposing that the distension of the bladder raises the gravid uterus, thus removing its pressure upon the ureters and allowing evacuation of the upper urinary tract.

Puerperal Pseudo-rheumatism.—P. Bégouin[3] claims that the so-called puerperal rheumatism, distinguished by Lorain from acute articular rheumatism and from arthritis due to puerperal infection, and considered by him as the consequence of a "normal" leucorrhea of pregnancy and the period after delivery, is merely gonorrheal rheumatism. Study of all old published observations and the bacteriology of recent cases show this to be true. This rheumatism nearly always assumes the form of an acute arthritis, non-articular, persistent, rebellious to treatment, and frequently resulting in ankylosis. It is diagnosed by its characteristics, by the circumstances under which it develops, and by bacteriological examination of the

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joint fluid and of the genito-urinary secretions, the latter being the only certain method. Pregnancy, labor, and lactation have no distinct influence upon the development, course, or prognosis of gonorrheal rheumatism, and it in turn does not interfere with a normal evolution of pregnancy. Its treatment is that of non-puerperal gonorrheal rheumatism and includes that of the gonorrhea itself.

Use of the Phonendoscope in Pregnancy.—Anastasiadès[4] has employed the phonendoscope for ascertaining the outline of the uterus and fetus, placing the instrument in the median line and percussing outward in horizontal lines. A mark joining the points at which the sound diminishes suddenly represents the portion of the uterus in contact with the abdominal wall; one connecting those at which it disappears shows the extreme limits of the organ. The dorsal position is used for this, but in mapping out the fetus the woman kneels and bends forward, resting her elbows upon the shoulders of an assistant, so as to throw the fetus forward by gravity. For the contents of the lower part of the uterus the dorsal position is necessary, with hips elevated. The writer thinks this method of exploration may be valuable, especially when others fail, as in hydramnion, twin pregnancies, uterine anomalies, etc.

Symphyseotomy.—A. Pinard[5] publishes the annual report of the Clinique Baudelocque upon symphyseotomy, covering the period from December 7, 1896, to December 7, 1897. In 97 cases of deformed pelvis, intervention was necessary in 20: symphyseotomy, 7; forceps, 3; Cesarean section and utero-ovarian amputation, 1; gastro-hysterectomy, 2; basiotripsy upon the dead child, 6 Symphyseotomy was performed twice upon primiparæ, five times upon multiparæ—in one of the latter for the second time. In this case the cicatricial tissue was torn during the passage of the head, causing a laceration extending into the vagina but not involving the urinary organs, and healing satisfactorily. Symphyseotomy was performed six times for rachitic pelvis, once for obliquely oval pelvis. All cases presented by the vertex at the superior strait. Three were delivered with forceps, four by version. The final results were seven living children, six living women. The single maternal death was that from sepsis of a profoundly albuminuric primipara in whom the autopsy showed a deep infection of the wound, which had apparently healed by first intention. Pinard advises drainage of the wound if it is not clean and dry; in other cases it may be completely closed.

As an argument in favor of symphyseotomy, Queirel[6] reports 17 cases of contracted pelvis in which he had refrained from inducing premature labor with the intention of performing symphyseotomy. All were delivered spontaneously or with slight assistance by forceps, thus avoiding the dangers to the child involved by premature birth.

Post-abortive Sepsis.—P. E. Hyrup-Pedersen[7] states that this disease is closely allied to puerperal fever, and only differs from this in less severity of the symptoms, undoubtedly caused

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by the smaller size of the uterus and consequently smaller absorbent surface. The treatment consists in the early and complete curetting of the uterus under strict aseptic precautions. This is followed by an intrauterine douche of a 1 per cent solution of lysol. The uterus and vagina are next packed with 10 per cent iodoform gauze; the gauze should be removed in from twenty-four to thirty-six hours, then a vaginal douche of a 1 per cent lysol solution is given morning and night for a few days. If after the above treatment the general symptoms of chills, rise of temperature, rapid pulse, etc., keep up, and if the uterine appendages and the periuterine tissues show involvement by their tumefaction and tenderness, a complete vaginal hysterectomy is indicated, as it insures the most complete drainage of the pelvic cavity; the prognosis is, under this condition, always exceedingly grave. He reports 6 cases which he curetted according to the rules stated above, with good results.

Labor complicated by Anterior Fixation of Uterus.—G. M. Boyd[1] believes a gestation where ventrofixation is apparent should be carefully watched, as a threatened miscarriage might indicate an abdominal section to liberate the uterus. An induced labor may be indicated where the presenting part is displaced and there exists marked thickening of the anterior uterine wall. At term, if the cervix does not dilate or the presenting part does not advance, manual dilatation or extensive cervical incision may be performed and the labor then terminated with the forceps. In exceptional cases Cesarean section will have to be resorted to. Boyd has had two cases of labor complicated by ventrofixation come under his observation.

Puerperium complicated by Typhoid Fever.—W. E. Parke[1] reports a case of puerperium complicated by typhoid. The points in this case which aided him in making a diagnosis against septic infection were the late appearance of the fever, the absolutely negative results of the intrauterine douche, and the failure of curettement to obtain any detritus from the uterus. The blood was examined on the seventeenth day and showed the presence of typhoid bacilli. He believes that if the blood had been examined earlier an earlier diagnosis of typhoid would have resulted.

Action of Quinine in Labor.—L. J. Hammond[1] has compiled a list of 100 cases of labor in which quinine was administered; of these 38 were primiparæ and 62 multiparæ. All of the 100 cases were those of women living in the extreme lower section of the city. He believes the administration of quinine, given to women whose muscular power is below par, if begun during the early stages of labor, will not only increase the expulsive powers of the uterus by its general tonic action, but it will also, through the same action, tend greatly toward lessening the dangers of septic invasion.

Drainage after Normal Labor.—L. Lankford[11] believes in the following system of drainage after labor: Forty-eight hours after delivery the patient is allowed to sit up in a chair for one-

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half hour, then she is placed in bed, and at the end of two hours she is allowed to sit up again, and so on until bedtime. The next day he allows the patient to sit up one hour out of every three. On the fifth day he allows the woman to sit up two hours and recline two.

Hysterectomy.—H. N. Vineberg[6] states that hysterectomy for acute puerperal septic metritis should be performed in those cases where curettage, frequent irrigation, and approved general treatment fail to bring about the desired results. He believes the pulse is the most important guide; if it goes over 130 and grows small and weak the uterus should be extirpated. He reports a case of a young woman with puerperal septic metritis on whom he performed hysterectomy with very good results.

Early Placenta.—M. Herzog[7] describes a nine-weeks-old placenta which he obtained from a uterus which had been removed on account of subserous myomata. The points in the article in which he differs from other writers upon the placenta are as follows:

1. In the amnion, near the insertion of the cord, there were found small cavities contained between two layers of amniotic mesoderm. It is possible that these small cavities are due to a reduplication of the amnion occurring at a very early stage of its foundation.

2. The chorionic epithelium and that of the villi presents itself in two very distinct layers, each of characteristic differentiating features. The Langhans "Zellschicht" has been found in a single cell layer only, nowhere as a double or a triple layer. The epithelium does not possess a basement membrane.

3. Plasmodial (syncytial) buds springing from chorion and villi are very abundantly found. Plasmodial islands in the intervillous spaces do not exist; what appears as such are buds separated from their bases by the direction of the cut of the knife.

4. Kastchenko's "Zellknoten" are likewise not at all islands floating in the intervillous space, but decidual and syncytial tissue detached from the decidua in the same manner as the buds are detached.

5. The chorion at the antiplacental pole still shows remnants of villi.

6. The decidua serotina, as well as the vera, show already patches of tissue in a state of coagulation necrosis. Where this latter is manifest there are found numerous leucocytes, many of which are in a process of nuclear fragmentation.

7. The decidua reflexa is in that stage of degeneration first minutely described by Minot.

8. Evidences are still found in connection with the decidua reflexa which prove that it once was very vascular and that the intervillous space filled with blood once surrounded the whole ovum.

9. The decidua serotina is not throughout its whole extent

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lined by vascular endothelium, nor have chorion and villi such a lining.

10. Changed remnants of the original uterine epithelium are occasionally found on the surface of the serotina and everywhere on the surface of the vera.

11. The open spaces of the spongiosa, the changed uterine glands, show epithelium varying from the normal to a stage of complete degeneration, and these spaces are not filled with blood, but with mucoid or hyaline material, cell remnants and hyaline spheres.

12. The intervillous space contains maternal blood which in its corpuscular elements is very different from the fetal blood found in the blood vessels of the chorion and villi.

13. The main, if not the exclusive, source of the canalized fibrin is the maternal blood in the intervillous space.

14. In this space are also found numerous hematoidin crystals. These insoluble derivatives of degenerating red blood corpuscles are in part carried into the utero-placental veins and from there into the general maternal circulation. They stand most probably in a causal relation to the comparative frequency of embolism and thrombosis during pregnancy and postpartum.

Maternal Impressions and their Influence upon the Fetus in Utero.—C. H. Mastin[9] believes that fright or the so-called "longings" of pregnant females may affect the infant in utero. He records a number of cases where frights and longings of the mother have been supposed to have had something to do with the markings on the child. He reports the case of a negro woman who had a great craving for pork during her pregnancy. Her child was born with a roll of rough skin on his face; this roll was covered with coarse hair not unlike that of a hog.

The Transition of Fat into the Milk of Nursing Women.—Bendix[10] finds that food rich in fat does not increase the percentages of fat in the milk of nursing women, and that the latter is probably derived from albumen.

Partial Thinning of the Uterine Scar after Cesarean Section.—In a case of repeated Cesarean section performed by Bruemings,[11] the greater portion of the old scar was found to be exceedingly thin. The uterus was not excessively distended, and Bruemings believes that this condition was due to an imperfect union and the employment of catgut as suture material.

Double Uterus and Vagina, with Pregnancy in Both Organs.—Juerard[12] reports an exceedingly interesting malformation of the female genital organs. A young woman came under his observation who gave a history of three miscarriages. A septum divided the vagina into a small anterior cul-de-sac and a wider posterior segment, at the terminus of which a cervix with two openings was seen. A further examination showed that the woman was also the possessor of two uteri, one placed before the other, and that both were pregnant, one about three months and the other seven months. The first terminated by

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miscarriage, while the pregnancy of the anterior uterus continued to full term. The patient was not seen again until she had been in labor for several days, and, as the liquor amnii had escaped and the woman had fever, craniotomy had to be resorted to. The patient made a good recovery. Juerard believes that the condition originated through the partial obliteration of the vaginal portion of Müller's duct during the early months of embryonal existence.

Chorea during Pregnancy.—Marinesco[51] describes the case of a young woman who died after being under observation for about four weeks. The patient presented nearly all the symptoms of ordinary chorea, only the characteristic walk being absent. The symptoms increased in severity in spite of appropriate treatment. Inco ordination and involuntary muscular movements were of almost an unbearable severity. Besides these there existed contraction of the iris, irregularity of the heart's action, and fever. Two or three days before death a pelvic tumor was discovered, believed to be the distended bladder, which was, however, the gravid uterus. The chorea appeared after a fall. In the latter stages of the disease the involuntary movements ceased and were followed by an almost entire paralysis. The patient died with a train of symptoms described by Charcot as *mal choréique*. Chorea gravidarum is frequently fatal, English and American authors reporting 40 per cent with fatal termination. Marinesco subjected the nervous system to a microscopical investigation and found that the pyramidal ganglia had undergone the changes which are termed "chromatolysis." Besides these there were inflammatory changes in the white matter. The author believes that these lesions are the cause of the involuntary muscular movements, the lesions themselves being the products of autointoxication.

Vomiting of Pregnancy.—C. S. Bacon,[52] in a very instructive paper and one which corresponds exactly with the experience of the editor, says:

Nausea and vomiting of pregnancy may last only a day or two, or may exist during the entire term of gestation; it may commence at any time after the first week till the end of pregnancy. Seventy per cent of all cases of vomiting begin in the first month. Very few cases begin during the fifth and sixth months. The greatest amount of sickness exists in the second month.

Vomiting does not always occur during the first pregnancy, contrary to the statement sometimes made. In primiparæ the frequency of its appearance increases with age, so that ninety per cent of primiparæ over 25 years of age are affected. During the first and second pregnancies more patients are sick in the early months. In the later pregnancies a greater number are sick in the later months. Women who menstruate regularly and without pain, and not too freely, have less sickness than those who are troubled with profuse or painful menstruation.

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Hyperemesis gravidarum is the term applied to the condition when the patient rejects about all the food ingested. The later stages of hyperemesis are characterized by symptoms of starvation—that is, great emaciation and weakness; rapid pulse, with low blood pressure; faintness, frequent syncope; scanty, acid urine, with little or no chlorides, but with albumin, casts, and blood; increase in the specific gravity of the blood and increase in its alkalinity, obstinate constipation, and delirium. The temperature is also decreased from 1° to 4°, the same as in the later stages of starvation.

There are various possible ways of explaining vomitus gravidarum: (*a*) Direct vomiting may be produced by an abnormal condition of the vomiting centre, due either to the irritating effects of chemical substances, toxins, etc., circulating in the blood, or to nutritional changes caused by variations in blood pressure in the medulla, or to other circulatory changes. (*b*) Reflex vomiting may be produced by sufficiently powerful impulses sent from the genital tract, causing an irritation of the vomiting centre. (*c*) Vomiting may be produced by a combination of influences affecting the vomiting centre both directly and reflexly. The vomiting centre may be made more irritable by circulatory poisons or by nutritional changes, and at the same time peripheral sources of irritation may be created by the same factors as act on the vomiting centre, or by other co-operating factors. (*d*) Still another possible cause of vomitus gravidarum is the psychopathic factor, like that which exists in the vomiting of hysteria.

Neither a theory of reflex irritation from the genital tract nor a theory of direct vomiting from irritation of the vomiting centre suffices to explain all the phenomena. We must assume that in two-thirds of all cases of pregnancy there exists an increased irritability of the medullary centres, due wholly or in part to one or both of these two factors: (*a*) nutritional changes resulting from circulatory disturbances, (*b*) poisoning from toxic elements circulating in the blood. We must further assume that this abnormally irritable vomiting centre is acted upon by afferent impulses sent from one or more of a variety of peripheral sources. Among the most important causes of reflex irritation are an incarcerated retroflexed uterus, abnormal adhesions of the uterus, pathological changes in the uterine wall resulting from endometritis pelvic congestion, constipation, gastritis, etc. To these sources of afferent impulses we must add the psychopathic or hysterical condition, which is of especial importance in the more serious cases.

In the diagnosis of vomitus gravidarum the pathological conditions which have no connection with pregnancy, such as meningitis, traumatism, uremia, hernia, etc., are generally easy to distinguish. The problem of diagnosis also requires the separation of the different sources of peripheral irritation. We thus have, outside of hysteria, the irritation outside of the genital tract, of the stomach, intestines, kidneys, peritoneum,

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and from the uterus, where the trouble may be from flexion, prolapse, endometritis, adhesions of the uterus, etc.

The prognosis in emesis and in the early stages of hyperemesis gravidarum depends chiefly on the possibility of instituting proper treatment. In severe hyperemesis the prognosis also depends on the seriousness of the changes in the vital organs as the result of starvation.

TREATMENT.—The obstetrician is generally not called until the vomiting is quite severe. *Prophylaxis* here consists in preventing the graver forms. Advice can also be given for the benefit of future pregnancies. Such prophylactic management consists in the cure of anemia, caring for digestible foods, the prevention of constipation, the correction of retrodisplacements of the uterus, and the cure of adhesions of the uterus as far as possible by massage. Especial attention should be given to the mental condition of the patient. The cases are particularly bad where a child is not wanted. Those patients who have no self-control are the most serious cases.

It will be seen from this that treatment to prevent vomiting of pregnancy should begin with the birth of the girl, as suggested by Giles de la Tourette when speaking of hysteria. Like the prophylaxis in hysteria, the entire education of the child is important. Later the masterful but kind bearing of the obstetrician is one of his most important aids. Rules of hygiene are especially important; regular eating and bathing, proper clothing, suitable exercise, enough sleep, and massage if necessary, are all to be attended to. Often account should be taken of the reading and amusements of the patient.

Treatment of mild cases of vomitus gravidarum.—The hygiene and general management, such as described in prophylaxis, are here about all that is needed. A proper condition of the bowels must be secured by the use of fruit, saline laxatives, enemata, and abdominal massage. The patient should take a cup of hot milk half an hour before arising in the morning. These measures will, in the majority of cases, prove all that is needed and a very great help.

Treatment of hyperemesis gravidarum, except the extreme cases.—The indications are, first, to allay excessive irritability of the nervous centres. Second, combat the neuropathic condition, hysteria, by strengthening the will. Third, remove the source of peripheral irritation.

The abnormal irritability of the central nervous system, which especially interests us, may be due to the deranged nutrition or to intoxication. In any case it is best allayed by providing a steady circulation of the blood with an equable blood pressure, and good elimination by the intestinal and renal emunctories.

For maintaining a proper intracranial circulation the horizontal position is necessary, and this measure alone is the most important of all things in treating the vomiting of pregnancy, as it is in the allied condition of seasickness. The position

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must be constantly and persistently maintained. It is often desirable to have the head lower than the feet. All nourishment must be given without raising the head. During vomiting the patient must be turned on the side, and on no account be raised. These details are so important, and yet so often neglected, that they must be emphasized and often repeated. Absolute rest in the horizontal position also serves another important purpose, viz., it insures against unnecessary loss of strength and vital energy. In extreme cases the dangerous symptoms and the fatal results are from inanition. When there is no fresh supply of food the body has a limited store of energy, and when the usable amount, which comprises less than one-half the body weight, is consumed, the patient must die; hence it becomes very important to restrict the amount of energy consumed and avoid all waste from unnecessary movements until the possibility of a new supply is established. Just as a starving person can live longer if he remain absolutely quiet than if he make violent muscular exertion, so a vomiting gravida conserves her vital energy by remaining in the horizontal position.

Other ways of maintaining a normal circulation consist (*a*) in stimulating the cutaneous capillary circulation by topical applications, and (*b*) in hypodermatic injections of stimulants and vasomotor regulators, and (*c*) in injection into the diminished blood current of artificial serum, either through the intestinal or subcutaneous route. Peripheral vascular stimulation secured by sinapisms or by the hot-water bag to the epigastrium or to the feet will, of course, not be neglected. Warm clothing to prevent cutaneous capillary obstruction, as well as to preserve the heat and energy of the body, will be looked after.

The use of drugs which act on the circulation is not unattended with risk, because of unpleasant action on other organs of the body. Nux vomica or strychnine may be one of the most valuable of these agents. Whether the bitter stomachics, including the recent and now popular orexinum basicum so warmly recommended by Frommel, Rech, and others, act on the circulation or locally on the stomach, is not determined.

The value of intravenous or subcutaneous injections of salt solution in raising the blood pressure and stimulating the circulation is now well established. In all obstetric cases the subcutaneous injection may be substituted with advantage for the intravenous injection. In the hypodermatic injection there is no danger of the introduction of air into the blood vessels, and the constitutional symptoms of chill, etc., which often follow intravenous injections, are absent; moreover, the former method is much simpler and can be carried out by any one, while the latter is a surgical operation of some difficulty.

The value of artificial serum in restoring the vascular pressure after severe hemorrhage, and thus counteracting its serious symptoms, has long been known. Its more recent use in sepsis has been based on the theory that it washes out the toxins in

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the blood. During its employment in these cases, however, its effect on the blood pressure has been especially noticed. As is well known, in severe cases of sepsis the pulse becomes rapid and soft, and the patient suffers from symptoms of weakened circulation as well as intoxication. It is in this condition that the *lavage de sang* exhibits its best effects, so that Tuffier, one of the most enthusiastic and diligent employers of this method, suggests that its chief value may consist in its effect on the circulation instead of its supposed action as a means of washing the blood.

If the abnormal irritability of pregnancy be due to intoxication the need of thorough elimination is apparent. This elimination is secured in ordinary cases by careful attention to the skin by means of baths and proper clothing, by preventing constipation, and by furnishing the system as much water as possible to aid the renal excretion. In hyperemesis gravidarum the urine becomes very scant. Here the subcutaneous salt solution acts very promptly and efficiently.

Nerve sedatives can be used in hyperemesis gravidarum only with great caution. If morphine is used quite large quantities must be employed, and its effects are in general bad. Chloral has cured cases that no other drug has helped.

In the management of hysterical cases it is often best for the obstetrician to plainly inform the patient that the control of the vomiting is possible by an exercise of the will, and insist that she make the effort. In many cases suggestion has been employed. It is very likely that many of the cures from Copeman's dilatation of the cervix, from cauterizing the external os uteri with nitrate of silver, from the use of electricity, etc., are due simply to suggestion. Hence in planning the course of treatment of a case of hyperemesis gravidarum it is very important to examine the patient very carefully to determine the presence of an hereditary tendency to hysteria and to search for hysterical stigmata. Having found a neuropathic element, we should not neglect the well-established principle of treatment of hysterical patients. The most important measure is separation from friends and relatives. In these cases they form the worst possible nurses. Let the patient be isolated under the care of an intelligent nurse experienced in these cases, and be subjected to a régime consisting of frequent feedings, massage, baths, etc.

To briefly sum up the suggestions regarding treatment, we would say: 1. The abnormal irritability of the nervous system, including the vomiting centre, is to be allayed by keeping the patient in the horizontal position, by attention to the skin and bowels and kidney, using rectal and, if necessary, hypodermatic injections of salt solution.

2. The hysterical condition which is so commonly found present should be controlled by strengthening the will and influencing the dominant ideas of the patient.

3. All sources of peripheral irritation should be discovered and treated.

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4. In extreme cases subcutaneous saline injections serve the threefold purpose of (*a*) dilating the blood and increasing vascular tension, (*b*) eliminating toxins through renal and intestinal emunctories, (*c*) furnishing two most important kinds of food.

5. Induction of abortion is never indicated, At a stage when it is safe and efficient it is not necessary, and in extreme cases it adds greatly to the danger, rarely stops the vomiting, and can be substituted by the artificial serum.

Sensibility of the Female Urinary and Genital Organs.—Calmann[14] publishes a large number of experiments which are of considerable forensic importance. The sense of localization in the urogenital apparatus of women is incompletely developed, and the subjects experimented upon were rarely able to differentiate between the bladder and vagina. Thus the subjects were not certain whether an instrument was placed in the urethra or vagina. Calmann could fill the vagina with cotton containing large quantities of shot, without the knowledge of the subject. In the urethra the temperature sense is strongly developed, to a small degree in the vagina, while in the cervix and interior of the uterus it is completely absent. The urethra and interior of the uterus are quite sensitive to pain, the vagina and cervix but slightly. These investigations prove that the statements of women regarding criminal or therapeutic manipulations, if confined to the urogenital apparatus, are unreliable, and if unsupported by other evidence they are an insufficient basis for criminal action.

Transmission of Tubercle Bacilli to the Fetus.—Bourges[15] has performed autopsies upon two mothers who have died of tuberculosis, and upon their children who died shortly afterward. In one case the fetus showed no apparent tubercular lesions, but its blood contained tubercle bacilli, as was shown by inoculation of a guinea pig. In the second case inoculation of the fetal blood gave negative results, showing that the bacilli had not passed the placental barrier.

The Urinary Secretion of the Fetus.—To decide the question as to whether the fetal kidney secretes urine or not, Schaller[16] administered phlorizin to pregnant women. Phlorizin, as is well known, causes a harmless mellituria in man, and the presence of sugar in the liquor amnii should demonstrate the urinary secretion of the fetal kidney. The investigations did not lead to definite conclusions, only moderate amounts of sugar being present in 6 cases, while in the remaining 14 the liquor amnii was free from sugar. It is interesting to note that urine of new-born children contains sugar if phlorizin be administered to the mother thirty-six hours before delivery.

Quadruplets.—Schatz,[17] of Rostock, reports a case of quadruplets in a Vpara 28 years old. The birth occurred about six weeks before term; the children, one girl and three boys, were born in the absence of a physician; labor lasted about eight hours. The children were born at intervals of a quarter of an hour; they were all alive, but the girl died after five hours;

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the boys continued to live. The average weight was three pounds, and their length about thirty-seven centimetres. The placenta was expelled spontaneously without noticeable bleeding. Each child had its own amniotic sac, thus showing that the quadruplets originated from four distinct ova. One placenta was attached to the anterior wall, while the remaining three were united into a circular disc attached to the anterior and posterior walls of the uterus.

Enormous Dilatation of the Urinary Bladder.—At a recent meeting of the Rostock Medical Society, Schatz[16] demonstrated the specimen of a fetus of about six months. The first pregnancy of the woman resulted in the birth of a seven-months fetus which had a distended abdomen, and in which, besides the complete absence of external genitals, a number of other abnormalities were noted. The present specimen is of special interest, as it proves conclusively active urinary secretion in uterine life and the probable evacuation of the bladder into the amniotic sac. The fetal abdomen is about the size of a man's head, which distension is due to the enormously dilated bladder. The penis and scrotum are represented by rudimentary structures, and an anal and urethral opening could not be found. The ureters and urachus were also much distended, the former having the calibre of a man's finger. The left kidney has undergone cystic degeneration, while the right organ is normal. The posterior wall of the bladder shows a small perforation, through which quantities of urine had made their escape into the abdominal cavity. In animals the question of urinary secretion has long been decided, because the urinary secretion is contained in the allantois, while the amniotic cavity contains the excretion of the skin. In man the probability of renal secretion has always been doubted, because apparently normal and healthy offspring have been born without any trace of renal organs. This deduction, however, is fallacious, because the fetus possesses in both the skin and placenta organs which may take the place and perform the functions of the kidneys.

Tetanus Uteri and Threatening Rupture of the Uterus.—Bruenings[17] describes a case of labor which is almost unique in the number of difficulties encountered. The author was called to a woman whom he found at full term. She had fever, was exhausted; beginning tympania uteri; also abnormal distension of the lower uterine segment, foreboding danger of rupture. On the day preceding, attempts to deliver by forceps or version had been tried without success. There was a profuse and stinking discharge. Bruenings applied the forceps, but could not deliver; after removing the forceps he discovered a large hematoma of the vulva, which burst during the subsequent craniotomy. The cranioclast did not hold and the bones tore off while attempting to deliver with the cranioclast and cephalotribe. As a *dernier ressort* Cesarean section was performed, but the woman did not revive and died soon after the operation. The pelvis was uniformly contracted; the child was large, weighing about nine pounds. The main obstacle

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to delivery was not the pelvic contraction, but the marked tetanic condition of the uterus.

Treatment of Abortion.—The principal agent in the management of abortion, according to G. B. Adam,[15] is rest. When signs of impending abortion appear the patient should be sent to bed, and should remain there absolutely until she has convalesced. As long as there are no symptoms of anything going wrong, such as hemorrhage or foul-smelling discharge, rise of temperature or pulse, it is only necessary to keep the patient at rest and allow the ovum to separate in its own time. Should there be hemorrhage in an early abortion, and the case seen before separation of the ovum has taken place, it is an excellent plan, after cleansing the vagina thoroughly, to insert into the cervical canal a strip of iodoform gauze, packing it fairly tightly, and then to pack the vaginal roof with similar strips, leaving them from twelve to twenty-four hours in position. On their removal the vaginal roof will be found clean, with the cervix well dilated, and in many cases the ovum will be found separated and free; if it is not its removal is greatly facilitated by having the canal dilated. Where there has been severe hemorrhage the uterus should be curetted, irrigated, and packed with iodoform gauze. Before curetting a careful bimanual examination should be made, in order to determine whether there are any diseased conditions such as a pyosalpinx or a cystic tumor.

Spontaneous Rupture of the Uterus.—J. J. Healy[16] reports two cases of the above variety. In one the rupture extended transversely about half the circumference of the uterus, the lower segment including the lower third of the body. In the other case the rent was also transverse, extending about two-thirds around the uterus, the posterior wall being intact and the lower segment including about the lower fourth of the body of the uterus. In both cases the rent occurred without any known cause.

GYNECOLOGY AND ABDOMINAL SURGERY.

Tuberculosis of the Peritoneum.—Parker Syms[17] believes that in a large proportion of cases of tuberculous peritonitis simple laparatomy will produce a permanent cure. He states that the incision should be large enough to allow satisfactory exploration of the abdominal cavity. When hydrops exists the fluid should be carefully evacuated. When there is an encysted mass, consisting of fluid or of granulation tissue, it is well to separate the adhesions and carefully sponge out the cavity, provided too much tearing and bleeding will not result. He states that the more simply and rapidly the entire operation is performed the better the results will be.

At a recent meeting of the Kiel Physiological Society, Hildebrandt[18] discussed the curative effect of laparatomy in the treatment of tubercular peritonitis. The various theories which seek to explain the existing fact are not free from objections.

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Investigating the effect of a laparatomy upon a tubercular inflammation of the peritoneum, it is important to know what are the effects of the former upon the healthy peritoneum. To answer this question Hildebrandt has opened the abdominal cavity of dogs, which he reopened after the establishment of complete union. He found that, besides a constant paralysis of the intestines, manifesting itself by sluggishness of motion and distension of the gut, laparatomy is also followed by decided hyperemia of the peritoneum, which may last for a week more, and, from its appearance, is probably of a venous character. In part the hyperemia is traceable to a diminished contractility of the intestines, because continuous peristaltic action is a powerful aid to the venous circulation. If this peristalsis is absent there occurs a passive congestion similar to the one observed in paralysis of the extremities. Hildebrandt believes that in part this hyperemia is also a symptom of the inflammatory processes which accompany even aseptic laparatomy.

One finds in the abdominal cavity after every laparatomy small quantities of a reddish fluid containing endothelial cells and a few pus corpuscles. Except for the enormous absorptive power of the peritoneum, the quantity of fluid would be larger. This hyperemia is also found after laparatomy for tubercular peritonitis, only more marked. The probable cause for this is the dilated blood vessels of the inflamed tissues, which retain larger quantities of blood. The author inoculated a number of rabbits and dogs with pure cultures of tubercle bacilli and produced a tubercular peritonitis in about three weeks. The curative action of laparatomy in these cases manifested itself in various ways. At times he observed a complete disappearance of the tubercular nodules. In other cases the progress of the disease was not arrested, but it was slower than in cases not operated. Thus in all cases life was prolonged, although complete cure was not always effected. Like Gatti, Hildebrandt noted that laparatomy in the earliest stages of the disease is without success. This is an important factor in the explanation of the curative effect of laparatomy. The lack of success in these cases may be explained through the fact that the bacilli retain at this stage a high degree of virulence. while the body has not yet succeeded in establishing a protective barrier. We know that congestive hyperemia of the lungs, a result of cardiac lesions, prevents tubercular infection and may produce a retrogressive metamorphosis in an existing tuberculosis, and at times a complete cure. The successful treatment of tuberculosis of the joints advised by Bier is dependent upon artificial hyperemia of the joints. Thus the conclusion is warranted that the curative effect of a laparatomy is the succeeding hyperemia. The observation that the cases of exudative tubercular peritonitis are most suitable for operations is also explainable through this theory, because in this form the peritoneum exudes large quantities of fluid and is capable of a higher degree of hyperemia. To prove the correctness of Hildebrandt's theory the absence of hyperemia should be syn-

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onymous with the absence of curative effect, and practical experiments prove the correctness of this theory. Hildebrandt opened the abdomen in a number of animals who suffered from tubercular peritonitis. He made a very small opening, avoided as far as possible handling of the intestines, and performed the operation under constant irrigation with warm physiological saline solutions. Although the animals made a perfect recovery from the operation, the operation did not arrest the progress of the peritonitis; it even appeared as if the animals thus operated upon died more quickly. The lack of success is probably owing to the fact that such an operation produces no peritoneal reaction and consequent hyperemia.

Nassauer[19] reports the observations of Gottschalk's clinic and the curative results obtained at that institution. He believes in the curative efficiency of hyperemia following laparatomy. Owing to its extensive circulatory apparatus, the peritoneum reacts easily and strongly upon a tuberculous attack. This reaction consists in a marked hyperemia, and constitutes the natural effort of Nature to effect a spontaneous cure. At times such an effort is successful and ends in spontaneous recovery. Generally, however, Nature is not strong enough to master the inroads of disease, and except for the artificial aid the organism would exhaust its strength and perish. The reaction reaches a certain height and there stops, and in vain are the efforts to overcome the disease. It is in these cases that laparatomy, performed at the proper time—that is, not too early and not too late—intensifies the hyperemia, augments the exudation, and thus delivers the final blow to the already weakened micro-organisms. It is this reaction, extending over weeks and months, which robs the tubercle bacilli of their vitality, while the peritoneum, at the same time, exerts its well-known power of absorption and obliterates the traces of disease.

Uterine Myomata.—J. B. Sutton[20] states that abdominal hysterectomy is indicated in cases where the tumor is impacted in the pelvis and interferes with the bladder, colon, or rectum, and also in those cases in which the myomata are cystic, septic, or of the submucous variety which causes severe and repeated bleeding. The patient should be kept absolutely quiet in bed for two or three days preceding the operation. The rectum should be emptied by a soap-and-water enema, and no food should be given the patient for six hours before taking the anesthetic. The pubes should be shaved and the abdomen washed with warm soap and water. The bladder should be emptied immediately before the patient is placed on the table. As soon as the patient becomes unconscious a sound is introduced and the relation of the bladder is determined. The sound is left in place and is used as a guide during the operation. The incision is made in the median line and as long as necessary. After the peritoneal cavity is opened the intestines should be protected by a warm, flat sponge. The tumor is then examined and its relation to the uterus determined, also

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the presence or absence of complications. The blood vessels are now ligatured and the mesometria divided. The surgeon divides the peritoneum on the anterior and posterior surfaces of the uterus in such a way as to make them continuous with the opening in each mesometrium. These flaps are then turned down. It is of great advantage to have plenty of flap. The uterus and its tumor are now cut away, leaving the lower half of the cervix. The advantage of leaving the lower half of the cervix in this way is very great, for all attempts to remove this portion of the uterus greatly endanger the ureters. Clear the pelvis of all blood, and by means of two or three interrupted sutures fix the cut edges of the peritoneum over the stump; then bring the flaps together by a thin continuous suture from one ovarian pedicle to that of the opposite side. The wound should be closed by three sets of sutures. The peritoneal edges are united by a continuous suture of fine silk. The cut edges of the sheath of the rectus are drawn together by interrupted sutures of silkworm gut, and the skin is sutured by a continuous suture of silk. A pad of antiseptic gauze, covered with a pad of absorbent cotton and retained by a flannel binder, is placed over the wound. If, on opening the abdomen, the tumor is found to be attached to the uterus by a stalk, myomectomy should be performed. The after-results of this operation are admirable, as the uterus and appendages are left in place. When the age and environment are favorable the patient may conceive. Vomiting may occur after both of the above-named operations; it is best treated by keeping the stomach empty for twenty-four hours.

The accumulation of gas may be relieved by the use of the rectal tube every three or four hours. The patient should be encouraged to pass water unaided, but if necessary a catheter may be used every eight hours; great care should be taken to keep the catheter clean. The temperature should be taken every four hours and be marked on the chart. The first reading may be as low as 97° or even 96°; it then slowly rises to 100° or 101° without causing alarm. As a rule it subsides to 99° in a few days. As long as the pulse remains steady and full it is a sure sign all is going well.

Sutton,[21] in discussing conservative hysterectomy or oöphorectomy, puts the objections to the latter operation as follows: 1. It is not always practicable to remove both ovaries. 2. The relief is neither prompt nor certain, whereas convalescence is quicker and more satisfactory after hysterectomy than after oöphorectomy. 3. The mortality of oöphorectomy is scarcely less than that of hysterectomy. 4. It is a greater disadvantage for a woman to lose her ovaries than her uterus.

Hofmeier[3] considers supravaginal amputation of the uterus with retroperitoneal treatment of the cervical pedicle the ideal operation for uterine fibroids, as presenting the least danger to life, the greatest guarantee against loss of blood and intercurrent affections, the minimum of difficulty of technique, and the most favorable recorded results; 338 operations by Olshausen,

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Chrobak, Von Rosthorn, Von Erlach, Küstner, and the writer have given 12 deaths, a mortality of 3.5 per cent. Hofmeier has performed the operation 45 times with one death.

W. Krusen[7] believes that if patients will allow myomectomy to be performed early there will be no interference with the natural functions after the extirpation of the fibroids. He reports 6 cases where myomectomy was performed with very good results.

J. S. Pyle[22] reports the case of a married woman with a tumor who had all the signs of pregnancy except the suppression of the menses. Pyle was called to see the case twelve months after the swelling commenced; he operated and removed a mass of fibroids about the size of a man's head. He believes that the attending symptoms and signs of pregnancy were due to the rapid muscular hypertrophy.

Treatment of Uterine Tumors by Ligature.—H. Hartmann and P. Fredet[3] discuss this question at length. They hold that in inoperable cases of cancer of the uterus ligation of both uterine, both utero-ovarian arteries, and those of both round ligaments may be indicated as an adjuvant to other palliative operations, especially curettage followed by cauterization and tamponade with iodoform gauze when hemorrhages are the most marked symptom. These ligatures diminish the discharges temporarily, but do not seem to exert much effect upon the growth of the neoplasm. The authors have reached these conclusions after three operations, which they report in detail. The uterine artery may be ligated at its origin or in the broad ligament through an incision above the round ligament and parallel to it. The writers advocate vaginal ligation of the uterine arteries for all cases of small or medium-sized fibroids unaccompanied by periuterine inflammatory processes. Their operations are too recent to furnish conclusive results.

Gouilloud[5] reports a case of uterine fibroid in which the depth of the uterine cavity was eleven centimetres. Clamps were placed upon the uterine arteries and were removed in forty-eight hours. Two years later the depth of the uterine cavity had become six centimetres, and menstruation, formerly very profuse, had become normal.

F. H. Martin[8] claims for vaginal ligation of the broad ligament *en masse* that it arrests uterine hemorrhage, causes atrophy of uterine fibroids, and modifies the nutrition of the uterus by interrupting its nerve supply. He ligates the base of the broad ligaments, so as to include collateral branches as well as the uterine artery, the nerves regulating uterine nutrition and those conveying reflex impulses. In severe cases he ties high enough to include also the utero ovarian artery. Opening the peritoneal cavity is avoided when possible. A number of favorable results are reported three years after operation.

Gottschalk[23] states that he has advocated and employed ligation of the uterine arteries in small myomata since 1891. Its results are quite satisfactory, and his method has been used

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by many others. The method is said to be absolutely free from danger. Gottschalk has operated personally in 20 cases. In 16 continuing under observation, the final results were the following: In 14 cases there was shrinking of the tumors; in 7 of these the growth could no longer be detected. In 1 case there was cessation of growth, and in the remaining one no improvement. In 15 cases hemorrhage ceased. The effect of the operation is an immediate anemia of the uterus. To obtain success it is essential that the tumors should not be supplied with blood from the uterine and ovarian arteries, otherwise only a temporary improvement can occur. Therefore intraligamentous or very large tumors of the fundus are unsuitable for operation, because in these cases the collateral blood supply is strongly developed.

Foreign Bodies Left in the Abdominal Cavity.—The method used by H. J. Boldt [1] to avoid any danger of articles being left in the abdominal cavity is as follows: Small pads as a temporary tamponade are discarded entirely; in the pelvis, if a small area is to be temporarily tamponed, he uses a long strip of gauze, and to its end a clamp is left attached, or the end is left so long that it remains externally. For the purpose of protecting the peritoneal cavity *in toto* sterilized towels are used in preference to the gauze compresses; for smaller surfaces to be protected large gauze compresses are used, to which a piece of silk or tape is attached, to the end of which a pair of forceps is applied. No pad, of those counted for the operation, is permitted to be torn or cut to meet an emergency, thus insuring against a double count. No pads are permitted to be thrown on the floor; they must all be placed in a receptacle for that purpose, if entirely discarded for further use during the operation. All pads and forceps are controlled by double count before the beginning and at the conclusion of an operation. In the event of a large number of small pads being required, they are never left in the cavity at all, but immediately removed when they have served their purpose. The abdomen should never be finally closed until all pads and towels have been accounted for.

Cancer of the Uterus.—Lauwers [2] records 12 cases of cancer of the uterus—11 treated by vaginal hysterectomy, 1 by abdomino-vaginal hysterectomy. Recurrence took place in 4; 1 died as the result of an accident; the rest are in good health after eight, five, four, 3 after two, and 1 after one year. Notwithstanding these results he advocates operation by the abdominal route, in order to remove the lymphatic glands, as it is impossible to know when the disease extends to these structures. Rouffart [3] also favors this operation. Jacobs [4] reports 2 cases in which the intestine was extensively involved, and calls attention to the frequency of such cases, in which cauterization of the ulcerating surfaces and antiseptic tamponade only are permissible. Henrotay [5] believes that vaginal hysterectomy will suffice in early cases, the only class which he considers amenable to radical treatment. Abdominal hysterec-

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tomy is indicated only for cases in which the uterus is too large to be removed per vaginam without morcellation or hemisection, in order to avoid inoculation of the operative field.

Le Roy [34] reports a vaginal hysterectomy for cancer of the cervix, followed by death from pneumonia.

Wisselinck [35] investigated and discusses the material of Küstner's clinic for the last two and a half years During this period he observed 275 cases of carcinoma uteri. In 63 of these cases the uterus was removed—55 per vaginam, 8 per laparatomiam. The disease is most frequent during the fifth decennium, and cancer of the cervix is the most common type. Cases occurring during the third and fourth decennia are most favorable for operation, and cancer of the body gives a better prognosis than that of the cervix. One woman died from intestinal obstruction, and one from sepsis after abdominal hysterectomy. The average duration of life after the operation is from eight to nine months. The disease reappears most frequently during the first year after the operation; after this period is safely passed the percentage of cures is comparatively large. Leopold is the only other author whose experience coincides in this respect with that of Wisselinck. The small percentage of operable cases is due partly to the negligence of the public and the late stage at which patients consult the physician, and partly to the culpable neglect of doctors to make a vaginal examination. A moderate infiltration of the parametrium is not considered a contraindication, but an involvement of the rectum or uterus stamps the case as unsuitable for operation.

Ectopic Gestation.—A. Pinard [36] believes that with few exceptions intervention in advanced cases should be limited to removal of the fetus. Immediate extraction of the placenta should be attempted only when the fetus has been dead a long time or in cases in which the walls of the cyst do not exist. Total extirpation of the sac is allowable only when one is certain that there are no adhesions, which is rare. These rules have been successfully followed by the writer in 25 cases.

Jurinka [16] reports the case of a IIIpara, 36 years old, who was operated upon by Rokitansky, the operation resulting in a living child, and, except for a pelvic fistula, the mother made a complete recovery. The child had an asymmetric skull and nervous disturbances, probably dependent upon lesion of the motor area of the left side. The literature contains 77 cases of extrauterine pregnancy operated upon at full term, with 38 recoveries.

D. C. Brockman [4] states that in those cases of extrauterine pregnancy which have ruptured into the ligament and dissected the peritoneum from the rectum, uterus, bladder, or adjacent structures, an operation must be performed and as much of the blood drawn off as possible. Then gauze sponges should be packed around the sac and the clots turned out of it. Secure all bleeding points found, irrigate with hot water, and, if possible, enucleate the sac; otherwise stitch it to the wound and

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pack with gauze, remembering always that the contents of the sac are usually sterile, but may be infected and should always be treated as if they were septic. When the sac ruptures into the abdominal cavity the clots should be rapidly turned out and the bleeding points secured. If patient's condition will justify thorough cleansing of the abdomen it should be done. Lastly, flush with normal salt solution, part of which should be left in the abdominal cavity. If infection occurs it will be necessary to reopen the abdomen and drain at a later date. Usually up to the fifth month the entire sac can be removed, but after this time it is seldom possible to remove the sac, as the blood supply is so great that it is impossible to control the hemorrhage. When the sac cannot be enucleated and the most absolute asepsis has been observed, it may be emptied of everything except the placenta, which may be left after cutting the cord, the sac closed and dropped back into the cavity, and the abdomen closed. When a positive diagnosis of interstitial pregnancy has been made Brockman advises hysterectomy.

Various Types of Malignant Growths within One Uterus.—Eckhard[26] describes the case of a woman 72 years old in whose uterus he found an epithelial and glandular carcinoma occupying the fundus, while a malignant adenoma had invaded the cervix. Besides the pathological interest, these cases are also of clinical importance in showing again the absolute necessity of removing the whole uterus in every case of uterine cancer.

Perforation of the Uterus.—Rosenfeld[27] describes a case of accidental perforation of the uterus, first with the sound, and then, on the day following, with the sharp curette. During the subsequent vesicofixation the fundus was exposed, the small opening found and closed with two catgut sutures.

Vaporization of the Uterus for the Arrest of Hemorrhage.—Dührssen[28] describes an apparatus for vaporization of the uterine cavity. Steam, generated by an alcohol flame, enters the cavity by means of a uterine catheter. This method is free from pain and can be used without anesthesia; its success is almost instantaneous. Prior to the vaporization the uterus must be dilated, and, if possible, its cavity should be explored with the finger. By partly surrounding the catheter by a poor heat conductor the cervix is protected and the cauterizing effect is limited to the cavity proper. Vaporization of two minutes' duration produces a complete necrosis of the mucous membrane. This is expelled a few days later, and represented in one case a complete cast of the uterine cavity. To avoid complete obliteration of the uterine cavity vaporization should in young persons be limited to a shorter period, about one-quarter of a minute. This method is indicated in menorrhagia, myomata, recent uterine gonorrhea, and possibly puerperal endometritis.

Metritis.—In writing of the treatment of metritis, Ozenne[29] considers the subject under the headings acute, subacute, and

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chronic. In all acute cases except puerperal he advises rest in bed and hot antiseptic vaginal irrigations for about an hour several times daily. After a few days these are replaced by a large hot injection each morning, followed by a vaginal tamponade with gauze soaked in an antiseptic glycerole. Adjuvant treatment includes the use of hot abdominal applications, intestinal derivatives, sedatives, and alkalies and diuretics for vesical complications. Subacute metritis is treated by alteratives and caustics combined with drainage, after dilatation of the uterine cavity. The same means should be employed in chronic metritis if it is impossible to curette with subsequent cauterizations for a week, and douches and utero-vaginal tamponades for twelve or fifteen days.

Post-operative Psychical Affections.—Joffroy [30] believes that a hereditary or acquired predisposition is necessary for the development of so-called post-operative insanity. Such causes are preoccupation, such as the fear of operation; intoxication, especially alcoholic, but sometimes of puerperal origin. The nature of the organs operated upon, the existing organic disease, the condition of anemia or cachexia, seem to exert only a secondary influence. Frequently several causes act together. The chief rôle seems to be played by a psychical action, an auto-suggestion, or an inhibition, and thus the post-operative insanity is most common to those who are predisposed, in hysterical persons, degenerates, or in those who are intoxicated.

Influence of the Menopause.—Auvard [31] claims that while small uterine fibroids diminish after the menopause, those of large size continue to increase. The frequency of cancer at this period appears to be only a coincidence, but nervous affections and dyspeptic disorders are dependent upon the cessation of menstruation. The menopause predisposes to cutaneous diseases and increases those already existing, especially prurigo, eczema, and urticaria. Nervous troubles of sight and hearing may occur, and the existence of the rheumatic or gouty diathesis is often made evident. Attacks of gout occur most frequently at the menopause and at puberty.

Ovarian Opotherapy.—Paul Dalché [32] reports a case of chlorosis and two of neurasthenia which showed marked improvement under the administration of ovarian substance. In the case of chlorosis, menstruation, which had previously been regular, was absent during the two periods while the patient was under treatment. In one of the neurasthenic cases a tube and ovary had previously been removed. The author apparently attributes the favorable results to the ovarian treatment, although the neurasthenic patients had the benefit of two and four weeks, respectively, of rest in the hospital. He administers desiccated ovarian powder in capsules containing one and a half grains, beginning with one or two capsules daily and increasing the dose as seems necessary.

Antiseptic Suture Material.—Thomalla [33] describes a new method for preserving silk and catgut, which consists in placing the sterile material in formalin-gelatin. The formalin-

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gelatin is gradually dissolved; thus the sutures remain antiseptic. It also prevents a too rapid absorption of the catgut. The author's experience with this method is quite extensive, yet he never observed suppuration of the sutures.

Vulvitis Gangrenosa.—Freymuth and Petruschky [10] report a primary case of noma occurring in the city hospital of Dantzig in which bacteriological examinations revealed Löffler's diphtheria bacillus. The correctness of the bacteriological examination was further shown by the immediate curative effect of antitoxin injections and the subsequent appearance of a diphtheritic affection of the throat.

Protargol in Gonorrhea.—Behrend [11] makes a preliminary report of his experience with protargol, and states that its local effect is intensely irritating and painful. Contrary to the statements of Neisser and Frank, this drug has not a rapid sterilizing effect upon the urethral mucous membrane. Concerning the reliability of bacteriological examinations for determining the presence or absence of gonococci, much depends on the period of the day when the examinations are made, for the cocci may be absent in the morning and quite numerous in the afternoon or evening.

Gonorrhea in Young Girls.—Nolen [12] observed 8 cases of gonorrhea in girls ranging in age from 3 to 9 years. The cases appeared simultaneously in the Leyden Hospital, and the probable source of infection was a sponge used conjointly. In 4 cases the initial symptoms were a moderate rise of temperature, which in two cases was accompanied by a macular eruption. After a lapse of five months, gonococci could be demonstrated in every case after the scanty vaginal secretion was made more abundant through injections of distilled water. Complications were a gonorrhoic arthritis, tendo-vaginitis, formation of abscesses the pus of which contained gonococci, circumscribed peritonitis. The author deplores the absolute uselessness of every and all therapeutic measures, and believes that many cases of chronic catarrh of later life can be traced to a vulvovaginitis of infancy.

Treatment of Gonorrhea.—The plan of treatment which W. Anderson [13] has found most satisfactory is as follows: When the case comes under observation within the first thirty-six hours after contagion he swabs out the vagina thoroughly with a 1 : 500 solution of potassium permanganate. By dilating the vaginal canal thoroughly with a wire speculum the remedy reaches all the sulci between the rugæ. He next applies the same remedy to the cervical canal and to the urethral glands, and inserts a vaginal tampon against the cervix, soaked in a solution of 1 : 5000 permanganate of potassium in boro-glycerin. The patient is then sent to bed and a liberal complement of blue mass given. The next morning two ounces of a saturated solution of magnesium sulphate in aromatics is exhibited. Every six hours after the first application a douche is given of 1 : 1000 permanganate of potassium in one gallon of sterilized water at a temperature of 110° F., applying after

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each douche the permanganate and glycerin tampon. This treatment is continued for twenty-four hours, after which the douches are administered every eight to twelve hours, and the strength of the permanganate is reduced to 1 : 2000 or 1 : 10,000, continuing the glycerin tampons with or without the permanganate, ichthyol, chinosol, or any other antiseptic best suited. The diet must be bland and non-irritating, and large draughts of demulcents administered.

If the urethra and Skene's urethral glands are infected it is necessary to apply the antiseptic more frequently to these parts. For this purpose he often uses peroxide of hydrogen, 1 : 4 of Marchand's medicinal strength. When the vulvovaginal glands are involved, as they are liable to be after the first week or two of the disease, he catheterizes the ducts and injects them with permanganate or peroxide every day by means of a small canula. Should the cervical and utricular glands be infected, as they are apt to be in a week or two of untreated gonorrhea, he knows of no better treatment than a thorough curettement, followed by the intrauterine permanganate douche 1 : 10000, and the application of equal parts of iodine and carbolic acid. The cavity is then packed with sterilized gauze to assure free drainage. The packing is removed in twelve hours and the intrauterine douches continued for two or three days. The hot antiseptic vaginal douches of permanganate, 1 : 10,000 to 1 : 1000, are used twice daily. The bowels are kept relaxed by salines. Meat, spices, wine, beer, and spirits are forbidden. When the urethra and bladder become infected he frequently washes them out daily with a 1 : 10,000 permanganate solution or a boric acid solution. In the subacute and chronic stages sandalwood oil and the balsams, with acetates and citrates of sodium or potassium, are serviceable. Anodynes, such as hyoscyamus, the bromides, or chloral, may be required.

The Spreading of Infection through Air.—Flüger[11] has made a series of interesting investigations upon the dissemination of spores from dry and moist surfaces and their mode of transmission in the air. Air currents of moderate intensity passing over moistened surfaces do not detach and carry bacteria contained in the latter, but if passing over dry substances the previously sterile current contains numerous bacteria. It is, however, interesting to note that bacteria cling strongly to wearing apparel, and that even powerful blasts of air are unable to carry them away. Air currents of less than one millimetre per second are sufficiently strong to carry and spread dried bacteria, and these may be held suspended in the atmosphere of a room for four hours and more. A faint draught of air suffices to carry a spray for long distances, and minute droplets were found suspended in the atmosphere after an interval of five hours. Speaking, sneezing, or coughing causes the ejection of particles of the oral secretions, and Flüger was able to infect plates of agar, placed at a distance of several

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metres, with cultures which, for the sake of experiment, he had placed in his mouth. Although the most common source of wound infection is contact, these experiments certainly show that infection from the mouth of the operator, the assistants or spectators is a factor not to be disregarded entirely. Even the patient may, through sneezing or coughing, infect the field of operation with the secretions of her nose or mouth.

Syphilis Bacillus.—Baniessen[39] maintains the view that macular, papular, and pustular syphilis are the result of staphylococci or similar types of micro-organisms. Baniessen has isolated a bacillus, which if inoculated into animals (swine are favorable subjects, owing to the visibility of the skin) produces symptoms closely allied to the symptoms of syphilitic infection in man. Eight to ten days after inoculation the point of entrance becomes indurated and reddish spots make their appearance, which after a brief period again disappear. In rabbits similar symptoms were observed, and another interesting point noted was the fact that these animals in subsequent pregnancies did not carry to term, but gave birth to premature and macerated offspring. The author obtained the contagium from the marrow, cartilage, and the epiphysis of the long bones and ribs of children who died in consequence of hereditary syphilis. The culture materials consisted of serum, gelatin, agar, and others. The micro-organisms were small streptococci closely resembling those obtained by the author from the blood of patients suffering from tabes and dementia paralytica. The blood of the tertiary period is also suitable for cultures, but not after mercurial medication. Blood examinations during the secondary stage were unsatisfactory. It is possible that during this stage the contagium is mainly within the skin.

Cyst of the Canal of Nuck.—A. Besson[40] reports the removal by Duret of a cyst of the canal of Nuck which followed a congenital hydrocele. The contents of the latter had disappeared when in the recumbent position, until the receipt of a traumatism causing a local inflammation.

The Direction of Ciliary Motion in the Human Uterus.—The direction of the ciliary motion of the epithelial cells of the uterine mucous membrane has not been finally decided, the investigations of Wyder and Hofmeier being directly opposed to each other in their final results.

Mandl[15] has made a series of experiments with recently extirpated uteri preserved in a warm physiological saline solution, and he has found, with Hofmeier, that the ciliary motion is from above downward, following the same direction as that of the tube.

Ureteral Fistulæ.—Alexander H. Ferguson,[41] from a study of 67 cases of ureteral fistulæ, draws the following conclusions:

1. The left ureter is more frequently the seat of trouble than the right.

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2. The most frequent variety is the uretero-vaginal, and the rarest is the uretero-abdominal fistula.

3. The most common cause is difficult labor; and forceps delivery is a prominent etiological factor.

4. Of all the operations performed in the pelvis, vaginal hysterectomy is the most frequent cause of ureteral fistula.

5. Other conditions being favorable, all cases of ureteral fistula are curable by operation. (*a*) In all cases of uretero-vaginal fistula the direct method of operating should be selected and no particular operator's method is applicable to all cases. When the ureteral opening is situated close to the bladder, Schede's operation is the most surgical and is applicable to the greater number of cases; when situated far away from the bladder, a plastic operation should be tried before a graver or more mutilating procedure is thought of. Intraperitoneal operations are suitable for the abdominal fistulæ.

6. For the cure of uretero-vaginal fistula it is absolutely unjustifiable to perform hysterectomy, nephrectomy, or colpocleisis. When septic infection of a kidney occurs it may be necessary to open or remove it. It bespeaks lack of surgical ability to remove a kidney, a uterus, or close a vagina in these cases of simple fistula.

7. Another procedure which is uncalled for is transplanting the cervix uteri into the bladder for the treatment of uretero-uterine fistula.

8. Directing the urine into a bowel is only justified when any other operation cannot be performed. While uretero-enterostomy has been successfully performed, it has but little to recommend it on general principles.

He also describes a case where he operated for uretero-abdominal fistula in the scar left after abdominal section.

A transverse incision was made through the right rectus muscle, which exposed the fistulous track from its suprapubic cutaneous opening in the median line, down to a firm mass to the right and posterior aspect of the bladder. A probe was passed through the sinus into this mass, and it was found to contain a cavity holding about half an ounce of urine, into which the ureter opened. The surrounding wall was about a quarter of an inch thick. When an oval piece was removed from its upper and anterior surface along with the sinus, and the urine carefully mopped out, the opening of the ureter into it was observed. Immediately opposite, and on a level lower than the opening into the artificial cavity, an incision was made into the urinary bladder just large enough to allow one to raise the upper lip of the bladder wound and place it over the mass at the end of the ureter where it was sutured with catgut. Iodoform gauze was packed around the sutured area and the abdomen closed with silkworm gut except at the point of exit of the gauze. The first packing was removed on the third day and afterward every twenty-four hours. On the eighth day the gauze was soaked with urine, and continued to be saturated with it more or less for four or five days, and then ceased.

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The oozing of urine was probably due to stitch holes in the bladder, possibly aided by the catheter being removed too soon. The wound rapidly closed and she is now perfectly well. No cystitis nor even vesical irritation followed. The abdominal wall at the seat of operation is not as strong as before and it has to be supported.

Cumol Catgut.—Le Roy Broun [1] describes the method used at present in the Woman's Hospital of New York.

Cumol is one of the derivatives of benzene and is chemically known as isopropyl benzene. It is a clear, straw-colored liquid, boiling at 151° C. Another derivative, pseudo-cumol, known chemically as a trimethyl-benzene, is similar in most respects to cumol, but has the advantage of boiling at 165° C. This pseudo-cumol occurs in coal tar, and is obtained from it by fractional distillation. It is this that is used in the sterilization of the gut, and not cumol, which boils at 15° C. lower temperature. It is a well-known fact that raw catgut contains at all times a certain amount of hygroscopic moisture. Upon the failure to eliminate this depends failure in sterilizing gut at high temperatures. This moisture must first be driven off before the gut is placed in the sterilizing medium. In order to bring the pseudo-cumol safely to 160° C.. a temperature near its boiling point, a sand bath is used. The vessel containing the pseudo-cumol is surrounded, bottom and sides, by sand, a half to one inch thick. This is easily done by placing the vessel containing the liquid in a larger metal vessel having about an inch of sand in the bottom, then filling the space between these two vessels with sand. The raw catgut, as bought from the dealer, is rough—that is, not sand-papered. The sizes in use are 0, 1, 2, 3, and a small amount of 4, though this is rarely used. Each size is kept by itself and is cut in one-yard lengths, amply sufficient for a double ligature. These lengths are wound loosely on small glass reels, which have for convenience a hole through one of the flanges. Through this hole the loose end is put to prevent the annoying unwinding of the gut. These reels, each containing a yard, being ready, a number of the same size are tied loosely together. Several of these bundles are placed in a wire gauze cage. This cage is made smaller than the sterilizing vessel and rests on projections, the object being to have the cage simply rest in the vessel and not come closely in contact with it. The cage is placed in the sterilizer and a thermometer is suspended so that its bulb shall be near the centre. The sterilizer being cumol, the heat is applied and the temperature raised to 70° C. This temperature is maintained for two hours. At the expiration of this time the gut is thoroughly freed of its moisture. The pseudo-cumol is now poured in, well covering the cage containing the reels. The heat is pushed until the thermometer registers 160° C. This is maintained for one hour. The heat is now withdrawn, and temperature is allowed to drop considerably before drawing off the fluid, which is preserved for future sterilizations. The temperature is maintained at 100° C. until

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fumes of cumol cease to come off. The catgut is now sterile and ready for use. To preserve it, the custom at the hospital is to have ready a sterilized dish filled with fresh absolute alcohol, also a number of four-ounce sterilized glass-stoppered bottles containing fresh absolute alcohol. Each bunch of reels is removed with sterilized forceps and placed in the dish. There, under alcohol, the string binding them together is cut with sterilized scissors. These reels are then transferred by a sterilized instrument to the bottles.

In cases where special apparatus cannot be readily procured a thoroughly serviceable one can be made by procuring a large sized metal pail, covering the bottom with sand for about an inch. Place in this an ordinary anatomical jar of such size that its top will not reach quite to the top of the pail and its sides will be from one half to one inch from those of the vessel. Fill this space with sand and you will have an excellent cumol sterilizer. To prevent the catgut from coming in contact with the jar, a layer of cotton is first placed in the bottom; a fine-meshed wire gauze is then rolled in the form of a cylinder, smaller than the diameter of the specimen jar. This is put in place, and cotton tightly pushed in between its sides and those of the jar. To provide a roof and an escape for the cumol vapors, nothing is better than a large glass funnel fitting well over the top of the jar. Through the neck of this can be suspended your thermometer, and over the neck can be fitted a rubber tube, the other end of which rests in a bowl of water. To make the "joint" between the glass funnel and jar reasonably tight it would be well to stretch around the outer edge of the jar two or three wide rubber bands. The funnel resting on these will give a very satisfactory joint, especially since there is no confinement of the vapor. As a matter of precaution to prevent the liquid from possibly igniting if the funnel should be knocked off, a piece of fine-meshed wire gauze cut the size of the jar can be laid on its top Over the free edges of this and the jar the rubber bands can be stretched. This method is absolutely safe as compared with alcohol. Being a hydrocarbon, it is inflammable, hence ordinary care should be exercised not to allow the vapor to escape close to a flame. The condensation of the vapor is best done by allowing the exit tube to rest in water. Another reason for this is its disagreeable heavy odor.

Gut sterilized by this method is absolutely freed of all spores and germs. It is recognized that a temperature of 150° C., maintained for one hour, will destroy all known bacilli and their spores. The temperature maintained in this is 160° C. for one hour.

The cost of pseudo-cumol is $6.40 a gallon. It boils at 165° to 167°. The temperature of 160° is below the boiling point and does not vaporize much at one sterilization. It can be used as long as it lasts. Gut prepared by this method and kept in absolute alcohol apparently loses none of the strength of the original raw gut. No 1 or 2 will withstand the hardest

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pulling. For those who fail to find this to be as stated, if the fault is not found in the original raw gut, it will be found either in the fact that all of the hygroscopic moisture has not been driven off before the sterilization has been commenced, or in their allowing the gut to come in contact with sides of the sterilizer and hence be baked too much. To prevent this, particular care should be exercised not to allow the inner gauze cage to rest against the sides of the sterilizing cylinder.

The time of absorption of this gut in the tissues is the same as that prepared in the ordinary way. The sterilization of chromicized gut by this method does not impair its integrity.

Repair of Injuries to the Pelvic Floor.—J. Riddle Goffe[42] in an important paper on this subject says: The essential structure of the pelvic floor, and the one upon which all active functions depend, is the levator ani muscle and its fascia. The functions of the perineum are entirely passive and may be classified as follows: (*a*) Anatomically the perineum fills a certain amount of space between the outlets of the two canals, the vagina and rectum; (*b*) give it attachment to the movable end of the levator ani muscle, and (*c*) it must get out of the way of the advancing head in parturition and of fecal matter in defecation—or, more correctly, to be drawn out of the way. All active movement of the pelvic floor is accomplished by the various muscles composing the muscular diaphragm of the pelvis. These muscles are all under one nervous control, all act in unison, and all of the less important ones are simply accessories of the levator ani proper.

Injuries to the pelvic floor are serious in proportion to the degree of impairment which they produce in the structure and functions of the levator ani. The only active function that any muscle is called upon to perform is that of contraction, but in its contraction it can accomplish nothing unless it has a fixed point of origin and a movable point of insertion. The levator ani is no exception to this rule. Any operation for the repair of the pelvic floor, in order to be effectual, must aim to restore to this muscle its distal attachment. It has been seen that in lacerations of the perineum of every form the torn ends of the muscles, with their fasciæ, have retracted into the tissues on either side, and must be brought again into apposition in order that continuity may be restored. This is a simple matter in the primary operation performed immediately after delivery, but in cases in which the injury is of long standing, before these tissues can be drawn out of their retracted positions and brought into apposition, the rectocele must be carried back out of the way so that approximation of the muscles may be effected at their original site in front of the rectum. In other words, the tissues constituting the rectocele must be carried upward and backward, and the anus must be drawn forward and upward, and, at the same time, the ruptured edges of the fasciæ and the tendinous edges of the muscles must be brought in contact. This can be accomplished by a procedure which is readily understood, extremely simple in its execution, and

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effectual in its results. Its advantages as compared with other operations are that it restores the perineum to a more nearly normal condition than any other operation; moreover, convalescence from the operation is entirely devoid of pain, and the patient may assume any position in bed which affords her comfort, and, if she cannot afford to pay for the constant attendance of a nurse, the operation permits of her getting out of bed to attend to the calls of Nature. This commendable feature is explained by the fact that only such tissues as normally belong in apposition are brought together, and all the stitches are passed through the mucous membrane inside of the vagina instead of through the skin.

It is hardly necessary to say that the field of operation is made aseptic. By rolling out the labia on either side the remains of the hymen can be followed down from the lower border of the meatus urinarius until it finally terminates in an abrupt caruncle. This caruncle is caught by a tenaculum or artery clamp and snipped off with scissors, thus serving as a landmark to indicate the outer boundary of the denudation. Then the caruncle on the opposite side is sought and treated in the same way. A point is now selected which marks the highest border of the rectocele, and a bit of mucous membrane is snipped off by scissors to mark its site. This point on the rectocele is then connected with the outer landmark by an incision made by drawing a scalpel from one point to the other and extending through the mucous membrane. A similar incision is made upon the opposite side, and then a third connecting the two outer landmarks by following the curve of the muco-cutaneous juncture and completing the outline of the denudation. This large, triangular flap is dissected off in one piece by stripping it from the underlying tissue with the handle of a scalpel. It is best to begin the denudation near the outer landmarks, as the line of cleavage can be easily found at this location. Thus, by catching a point of the flap between the thumb and index finger, and setting it free a short distance and rolling it toward the axis of the vagina over the finger, the underlying tissue can readily be stripped off by successive short strokes with the handle of the knife, keeping constantly in mind the fact that the operator must closely hug the mucous membrane.

In cases in which the flap has been carefully outlined and the above method of removal followed, it is no unusual experience to remove the flap in one and a half to two minutes' time. This denuded surface corresponds very closely to that described in the Hegar operation. The point of originality consists almost exclusively in the manner in which the stitches are passed. Catching the tissues at the upper part of the rectocele with an artery clamp, which is elevated by the hand of an assistant, and with the index finger of the left hand in the rectum, the needle is inserted about one-fourth of an inch from the angle of the denudation. Passing through the mucous membrane, the needle is swept out toward the side of the pelvis

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and gradually curved toward the median line until it emerges near it and about an inch and a half down the rectocele. It is then withdrawn, and again inserted about one-eighth of an inch on the opposite side of the median line, and swept back through the tissues in a reverse direction until it emerges upon the mucous membrane at a point equally distant from the angle of denudation and corresponding with the point of insertion. A second stitch is inserted about a quarter of an inch further down the edge of the mucous membrane, and made to pursue a course corresponding to the first suture.

In inserting these sutures they should be passed sufficiently far down the rectocele to carry it entirely up into the vagina when the sutures are tightened. The two or three succeeding sutures which are similarly passed bring together the separated edges of the muscles and fasciæ in front of the rectocele. The last suture is inserted just above the position of the caruncle which was removed on one side, swept down around the entire circumference of the denuded surface, and made to emerge above the site of the corresponding caruncle on the opposite side. To understand the action of the sutures as inserted in this method, the fact must be borne in mind that the vaginal mucous membrane and underlying fasciæ through which the first two sutures are passed afford a more resisting tissue than that which makes up the rectocele. Therefore, when these sutures are tightened, the line connecting the point of exit and insertion of each suture near the median line of the rectocele is drawn up under a line connecting the points of insertion and emergence in the mucous membrane, and thus, to that extent, lifts upward and backward the rectocèle. The same principle applies to the remaining sutures, so that their combined effect is not only to unite the torn borders of the muscles and fasciæ, but at the same time to lift the anus upward and forward and so restore it to its normal position. The last suture surrounds the edges of so long an incision that these margins will usually be found to gape a little along the line from the point of insertion of the last stitch to the bottom of the fourchette. To secure primary union and prevent the secretions from entering this little gap, it becomes necessary to insert one or two superficial silk or catgut sutures at this point. The entire strain, however, is taken by the sutures which are passed through the mucous membrane of the vagina.

It will be noticed that the sutures, instead of being passed through the skin, as is the case in Hegar's operation and also in that of Emmet, are inserted in the mucous membrane of the vagina and take their points of support from the fasciæ, thus lifting the rectocele and the anus instead of dragging them down, as is true of the operations mentioned. This method of passing the sutures seems to me not only mechanically more nearly correct than others, but also has the additional advantage of not causing pain. The suture material is silver wire, about No. 25, which is inserted by hooking it into a carrying thread of silk attached to a strong, straight needle.

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When the laceration involves the sphincter ani and the anterior wall of the rectum, the tear in the rectal wall is first closed by interrupted catgut sutures which unite merely the mucous membrane of the rectum. In closing this tear the sutures should be continued from the upper angle down beyond the outer border of the torn ends of the sphincter muscle, which are indicated by dimples in the tissues on each side. Of course the denudation of all the parts to be brought together in the perineal operation is made previous to the insertion of this suture. The silver-wire sutures are now passed, as previously described, with the one exception that the two final sutures are both made to include the ends of the sphincter muscle. Previous to passing any sutures, however, the sphincter muscle is grasped between the thumb and finger of both hands and stretched as much as possible in order to secure as large an anal opening as the length of the muscle will permit.

If, after tightening the sutures, the orifice of the anus seems too small, insert a bistoury at the posterior edge of the muscle and divide it subcutaneously clear across its entire structure. This affords sufficient patency to the orifice and at the same time does not interfere with the function of the muscle in maintaining fecal continence after healing has occurred. The explanation of this latter fact is as follows: It is a common experience with all surgeons to find that the sphincter ani can be completely divided in cases of fistula in ano, not only in one direction but even in two, and the function of the muscle not be interrupted after recovery, provided the incision in the muscle is not made *anteriorly*. If this provisional incision is made in the median line anteriorly the same consequences follow as in rupture of the perineum during parturition—viz., the transversus perinei muscles separate, retract into the deeper structures, and so draw apart the two divided ends of the sphincter that it becomes impossible for them to unite. The after-treatment is comparatively simple. As a rule no anodyne or sedative is required. If the patient is uncomfortable she can be relieved by changing her position. The open bowel treatment is employed. This is accomplished on the second day after the operation by giving Seidlitz powders in divided doses every half hour until four doses have been taken. When the laceration has extended into the rectum all rectal injections are prohibited. The patient is kept upon a liquid diet, consisting of soups, broths, hot water, etc., during the first two days, but no milk is allowed. After the bowels have been freely opened the patient is allowed a small quantity of meat, such as chops, steak, roast beef, with toasted bread. No vegetables are permitted. Every morning a saline is given and a free, watery evacuation of the bowels secured. A self retaining catheter is usually inserted into the bladder at the close of the operation and left there two days. Through this the urine is allowed to escape every six or eight hours. After the second day the catheter is removed and the patient is usually able to void urine naturally. The parts should be bathed after each

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urination. The stitches are not removed until the tenth day, and the patient is kept in bed until the seventeenth day.

Operation for Intraligamentous Cysts.—C. K. Flemming,[1] immediately after opening the abdomen, ligates the ovarian artery on the tumor side in the infundibulo-pelvic ligament. If the cyst is very large he withdraws a part of its contents. The broad ligament on the free side is now cut between two ligatures down to a point near the internal os. The anterior flap containing the bladder must now be made, and should consist of enough peritoneum from the anterior surface of the uterus to cover the stump of the cervix. A posterior flap of peritoneum, such as is recommended, he never makes even in ordinary abdominal hysterectomies, as it simply consumes time and offers no apparent or real advantage over the single anterior flap. After completing this step the uterine artery should be ligated. The uterus should now be amputated above the supravaginal junction and the uterine arteries either ligated or clamped. Then, after elevating the amputated body of the uterus, the first and second fingers are insinuated between the folds of the broad ligament and the cyst enucleated from below upward. The final step in the operation consists in trimming the broad ligament, leaving only sufficient peritoneum to make a good flap over the denuded area. A strip of sterilized gauze is placed under the flap and the end of it carried through the cervical canal. The flap is held in place by a continuous suture, which is also used to close in the anterior flap over the cervix.

Ovarian Cysts.—W. E. Swan[2] reports two cases of suppurating ovarian cysts to show the way the adhesions were overcome and the manner of drainage. The cyst walls were incised to the extent of about one-half their thickness and about two centimetres from the gut all around the areas of the adhesions, and then the walls of the cysts were split much after the fashion of splitting leather. By this method a small dead space and a portion of uncontaminated cyst wall were left in the peritoneal cavity, and in no way interfered with the recovery of the patient. Intraperitoneal drainage was used, the foot of the patient's cot being raised about twenty inches.

Cranio-rhachischisis.—E. W. Clarke[3] describes a monstrosity the vault of whose cranium was wanting. All the bones which were normally formed in membrane were in default, together with the integument. In the cup-like hollow formed by the bones of the base of the cranium there lay a flaccid cystic structure, representing the brain enveloped in the dura mater. Posteriorly a prominent arch of bone hid the medulla. Beyond, in the spinal region, the canal lay open nearly its whole extent, revealing strands and bundles of nerve substance. The limbs and body were normal.

Treatment of Cancer of Rectum.—O. S. Fairchild[4] summarizes the several points in operations on the rectum as follows: 1. If the cancer is situated low down and involves the anus, a simple resection of the rectum should be done,

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dividing the intestine at a safe point above the growth, and suture it to the skin. If it cannot be brought down sufficiently to do so, anchor it as low down as possible. 2. If the cancer is above the sphincter, make a Kraske operation in preference; but if in a given case it is thought best, on account of a desire for more room, a higher resection, as a Bardenheuer, may be made, or, if there is a special reason for it, a temporary resection. 3. In a case of sacral resection attach the proximal end of the rectum in the most practical way, either by a Murphy button, or, still better, if possible, by the Mouolonguet method, or, if this cannot be done, stitch at some point in the sacral wound. 4. If opening of the peritoneum can be avoided the danger is much less. If the opening of the peritoneum cannot be avoided, protect the peritoneal cavity by gauze sponges and then close the peritoneum by catgut sutures. 5. Avoid a preliminary iliac colotomy, unless the patient's general condition is bad and some preparatory treatment is necessary. Even if this operation is made an aseptic condition cannot be obtained, and the fixing of the intestine in the abdominal wound will interfere in subsequent bringing down of the intestine. 6. An iliac colostomy may be done as a means of rendering the last days of the patient more comfortable when the rectum is so nearly occluded by the cancerous mass that it is impossible to obtain a movement of the bowels or only with great difficulty.

Adhesions of the Female Prepuce.—C. S. Bacon[50] suggests that in the careful examination of a new-born girl baby the clitoris should not be overlooked. He believes that adhesions of the prepuce may lead to masturbation and also cause certain immediate nervous troubles, such as convulsions, enuresis, and, perhaps more remotely, chorea, epilepsy, etc. He reports two cases of young children who frequently masturbated on account of the irritation caused by adhesions of the prepuce. One case, that of a child 2½ years old, frequently masturbated by crossing her thighs and rubbing them together. The other case was that of a child, 22 months old, who also indulged in the "thigh practice." By the removal of the adhesions all irritation stopped and the girls stopped masturbating. He believes all adhesions should be broken up at the time of birth.

Appendicitis.—In young children the risk of perforation or gangrene of the appendix, or some other fatal accident, is more likely to occur than in adults, and for this reason G. Barling[51] advises operation after one really severe attack. In adults, unless there is some special reason against it, he waits until the second definite attack has occurred before he operates. He believes the most suitable time for operation is about three weeks after the commencement of the attack, when all acute symptoms have disappeared and the temperature and pulse are normal.

Perineorrhaphy and Posterior Colporrhaphy.—F. T. Andrews[52] describes an operation of this kind, the steps of which

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may be summed up as follows: 1. The labia are separated and sharp retracting hooks on the myrtiform caruncles expose the field of operation. 2. An external triangle is denuded on the skin surface, as in Emmet's operation. 3. Keeping to the left of the median line, the finger is then passed upward, under the mucous membrane of the posterior vaginal wall, to a point beneath the cervix. 4. Repeating this on the right side, we have two parallel sinuses extending the whole length of the recto-vaginal septum. 5. The mucous membrane is now cut with scissors, from the vulva to the cervix, over each sinus. This leaves a tongue of mucous membrane attached to the middle line of the vagina. 6. Secure the small spurting artery in each incision with the forceps. 7. The first stitch is so passed as to surround the tongue of mucous membrane and draw it back under the cervix. 8 The remaining stitches are passed as in the repair of a recent laceration.

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DISEASES OF CHILDREN.

Acute Leukemia in Childhood.—John Lovett Morse[1] reports 7 cases, from which the following conclusions may be drawn: There is evident no etiological cause. The disease sometimes begins abruptly with typical leukemic manifestations, and sometimes with general indefinite constitutional symptoms which, in the course of days or weeks, develop into the characteristic picture of leukemia. The course of the disease in children is not different from that pursued in adults. In children, as in adults, acute leukemia is usually of the lymphatic type. The blood differs in no essential particular

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from that of the disease in adults. Acute leukemia in children is always fatal.

Adenoids.—John W. Farlow[2] contributes an article on some forms of adenoid disease which are often overlooked, and on conditions which may simulate adenoid growths. He states that adenoid disease often exists and causes symptoms demanding operation, without the presence of mouth-breathing or apparent nasal obstruction. Chronic inflammation of the pharyngeal tonsil, not necessarily obstructive, may occur as the result of a succession of colds, the grippe, or contagious disease. The author calls this the small catarrhal adenoid. This small growth may give rise to disturbances, such as croup, chorea, nervous twitchings, hoarseness, hacking cough, scraping of the throat, to say nothing of diseases of the ear. These small tonsils, with diseased areas and follicles prone to inflammation, demand attention equally with the hypertrophied glands. Conditions which may simulate adenoid disease are as follows: any obstruction in the upper air passages above the uvula necessitating mouth-breathing; deviations, spurs, and ridges of the septum; weakness and falling of the alæ; catarrhal secretion which children neglect to blow out and which adheres to and stops up the nose; chronic eczema of the anterior nares with formation of crusts which block the nostrils. The openings of the nostrils may be too small, or the interior of the nose may not be large enough for the individual. Children's noses are small enough at the best, and any reduction in size may lead to snoring and mouth-breathing. Hypertrophy of the turbinates, especially of their posterior ends, in young adults may have a close resemblance to adenoid disease. In fact, it would seem that any abnormality in the nose, mouth, or of the teeth may give rise to mouth-breathing.

Affections of the Cornea and Conjunctiva in Acute Infectious Diseases.—Burton K. Chance[3] calls attention to the frequency of these affections. The conditions of the eyes at such times call for frequent flushings of the conjunctival sac with warm blood-detergent solutions, such as boric acid, and the eyes are to be protected by a shade. The acid lacrymal secretions should be washed away by the repeated use of boric-acid solutions. If there is much irritation and pain, the addition of two grains of cocaine to the ounce will give great ease to the patient. At night the lids should be anointed with vaseline. Should there arise pericorneal injection and slight corneal haze, some mydriatic should be instilled until the pupil is dilated.

Auto-intoxication.—Samuel M'C. Hamill[1] has an article on this subject, with the report of a case. He believes it is questionable whether we have fully appreciated the importance of the gastro-intestinal mucous membrane in the function of secretion. It is possible that it may be the function of the intestinal mucous membrane to dispose of poisonous substances which are incapable of disposition by either the kidneys, skin, or lungs. We know very little of the nature of the self-formed

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poisons in the body. Rochford has isolated from the urine of a large number of cases of migraine, migranous epilepsy, gastric neurosis, asthma, and certain other conditions, excessive quantities of paraxanthin, heteroxanthin, and certain other alluric bodies. These substances he has shown to be present, save in the merest trace, only at the time of the paroxysms. By injecting paraxanthin, probably the most poisonous of these bodies, into mice, he has developed symptoms akin to those seen in the patient from whom these bodies had been derived. While the presence of these bodies, probably in large part, explains the occurrence of migranous symptoms, it is not improbable that there are other, as yet undiscovered, factors acting in conjunction with them. It is certainly true that cases of undoubted migraine do occur in which no such substances are to be recovered from the urine.

Barlow's Disease.—Zuppinger[4] reviews the literature and reports in detail the case of a 3¼-year-old girl, rachitic, with large swellings over both lower tibial epiphyses, subcutaneous hemorrhages, and swollen, softened gums over carious teeth; both forearms became swollen and there was marked edema. In four months the child was discharged cured and the deformities disappeared. A second case is reported, also in a rachitic child, which was cured permanently.

Cephalalgia in Children.—A. Nil-Filatow[5] says that headache in young children is often unnoticed until it reaches such a degree of severity that it is manifested by their holding their heads, pulling on their hair, or swinging their heads from side to side. Cephalalgia is very frequent in children over 5 years of age, and may be divided into acute and chronic varieties. Under the acute form are to be classed headaches which have lasted a few days only. Chronic headaches are habitual, permanent, or are repeated at irregular intervals. When a child suffers from acute cephalalgia accompanied by high fever, it is important to ascertain whether the headache depends upon the fever or whether it marks the onset of meningitis. In meningitis and hydrocephalus the headache is characterized by intensity out of proportion to the temperature, and persistence without remissions. A severe and unusual headache, with a temperature of 38° (100.4° F.) to 38.5° (101° F.), is almost pathognomonic of meningitis. Intense headache with a temperature of 40° (104° F.) does not point to meningitis, even when there is vomiting.

Intense headache with very slight fever, during the course of coryza, may be due to extension of the catarrhal process to the frontal sinuses; in this case the pain would be localized anteriorly. Cephalalgia has especial significance when it occurs in a child suffering from acute nephritis, indicating, as a rule, the beginning of uremia, especially when accompanied by vomiting. Acute headache may be situated in the soft tissues of the cranial integuments, as in rheumatism or inflammatory processes. In the latter case the pain is increased by

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pressure. In rheumatism of the epicranial aponeurosis there will be coexistent pain in the muscles of the neck, which is increased by a frowning motion of the eyebrows.

Chronic cephalalgia may be due to severe anatomical lesions of the brain, as chronic hydrocephalus, intracranial tumors, etc., or it may occur idiopathically. When there is chronic disease of the brain we shall have other symptoms, as vomiting, weakening of the intellect, paralysis and paresis of the ocular muscles (strabismus, ptosis, amblyopia), local or general convulsions. The headache has a tendency to increase in intensity.

In the case of circumscribed lesions the pain is limited to some special portion of the head.

Migraine is largely due to heredity. The pain always occurs in the form of special attacks, is situated upon one side of the head (usually the left), usually ends in a few hours with an attack of vomiting, and is followed by sleep. These attacks are repeated at intervals of a few days, weeks, or months. They rarely occur two days in succession; they come on without appreciable provoking cause or follow some slight fatigue. Should all family history exclude the possibility of heredity, it is likely that instead of being migraine the headache is a reflex phenomenon (from the nose) or symptomatic of anemia, cerebral affection, etc. Migraine is usually amenable to treatment by antipyrin or antifebrin. In neuralgia of the orbital nerve the child usually points to the infra-orbital region as the seat of pain, and pain is increased by pressure upon the infra-orbital foramen.

Headaches may also come from disorders of nutrition, and are then irregular and not localized. A diagnosis is reached by exclusion of other causes and by the presence of anemia or chlorosis; the anemia itself may be dependent upon catarrh of the stomach, worms, nephritis, uremia, and onanism. In children of from 10 to 16 years we often find a form of headache localized in the front or generalized over the whole head, and combined with other signs of neurasthenia, irritability, melancholy, tears, etc. This is headache from overwork, school headache, "growing headache," and is especially characterized by an inability to study. In slight cases it occurs only after great mental fatigue, in more severe cases after the least mental effort, even the reading of interesting stories. Complete mental rest for six months at least is the only efficacious treatment. This form of headache is easily confused with that which comes from some ocular disorder, which can be cured only by the wearing of appropriate glasses.

Colitis in Children.—In a previous article Louis Guinon* discussed the diagnosis of this disease. In the present one he speaks of its treatment.

Acute Simple Colitis.—At the onset the pain, colics, tension of the intestines, and the fever must be overcome. Hot-water compresses are better than poultices. Baths should also be used. If the fever be slight, baths at 35° (95° F.) ten to fifteen

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minutes in duration may be given; if it go beyond 39° (102.2° F.) tepid or cool baths (31° to 27°) (87° to 80° F.) are better, and should be repeated every three to four hours until the temperature falls below 38.5° (101° F.). For the rectal pains opium is not very efficacious, and it diminishes the already scanty secretion of urine. Still it may be given in the form of enemata, in doses of one to three drops in a teaspoonful of hot water. Antipyrin likewise diminishes the amount of urine, but is of value in overcoming pain, fever, and restlessness. Small doses of 0.05 to 0.10 (¾ to 1½ grains) well diluted in alkaline water may be given three or four times a day. When there is little fever, but much restlessness which the baths are unable to subdue, a little chloral may be given. Nourishment is essential. Milk is badly tolerated; it causes colics and diarrhea and increases the fever. The white of egg beaten up in a glassful of a tepid and sweetened decoction of barley is usually well borne, or, indeed, a decoction of any of the cereals. When the stools are lessened in amount, on about the second day, chicken or veal broth may be given. It should be free from grease and contain no vegetables. 2. *At the crisis* of the disease enemata of hot boiled water, 38° to 40° (100.4° to 104° F.), with a little marshmallow, are well tolerated. Antiseptics such as boracic acid and naphthol are useless, but we may add 7 to 1,000 of sodium chloride or a 3 per 1,000 of borax. Enteroclysis is of doubtful value. Small doses of castor oil (one to three teaspoonfuls) may be given in cases where the pain is not intense, when the stools are half-glairy and half-diarrheal in quality. When the stools are putrid, calomel is useful, but we should bear in mind the fact that it is itself capable of causing mucous or even bloody stools. The doses should therefore be very small. For a child 1 year old 0.01 to 0.02 (⅙ to ⅓ grain) divided into three to four powders may be given from hour to hour. 3. *During convalescence* the intestines should be washed out with boiled and borated water. Biscuits, bread crust, soft-boiled eggs, tapioca, a mulled egg, and (very cautiously) milk may be added to the dietary. Constipation should be combated by castor oil, the sulphate of soda, or magnesia. If diarrhea reappear the food is diminished and small doses of calomel given. Should it persist, doses of tannigen 0.10 to 0.25 (1½ to 4 grains) three to four times a day, in fluid at meal times, should be administered.

Dysentery from Colitis.—Ipecac is especially useful in these cases. It may be given in doses of 0 20 (3⅓ grains) to 1.50 or 2.00 (22 to 30 grains), according to the age of the child, in an infusion of 100 to 200 grains (3 to 6 fluidounces) of sugared water. Vomiting is to be averted if possible. Should the stools remain dysenteriform for three to four days it would be well to try lavements of the nitrate of silver, 0.20 (⅓ grain) to a litre of warm distilled water.

Treatment of Complications.—Collapse demands energetic measures. Artificial heat, immersion in a hot bath, 38° (100.4° F.), to which we add two to three glasses of wine, are

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useful, and hot and alcoholic drinks should be given. Subcutaneous injections of artificial serum may be used. Meningeal complications demand tepid baths and lavements and injections. The greatest cleanliness of the vulva and perineum should be observed to avert vesical complications. Cystitis should be treated by the internal administration of the biborate of soda or salol. The bladder will be completely sterilized only by repeated injections of a 1 : 5000 solution of permanganate of potash.

Chronic Colitis.—The chief indications for treatment are: 1. To overcome neuropathic tendencies in young subjects by bathing, daily tepid douches, the avoidance of fatigue, rest in bed. 2. Careful regulation of diet: (*a*) In cases of constipation give vegetable soups, boiled meat and fish, dried vegetables, cooked fruits. The usual régime for constipation cannot be followed because of the danger of irritating the intestines. (*b*) In cases of diarrhea milk can usually not be given because it is not well tolerated. Give gruels, farina, soft-boiled eggs, tender meat finely minced, raw hashed mutton, mashed potatoes, bread crust, toast. Digestion is impaired, and chlorhydric acid should be administered:

℞ Hydrochloric acid	0.50	8 gr.
Distilled water	100. gr.	3⅜ fl. oz.
Gum arabic	1. gr.	15 gr.
Syrup althea	20. gr.	5 fl. oz.
Tinct. thebea	ij	to iv. gtt.

One dessertspoonful twice a day.

3. To reduce the inflammation of the large intestine. Hot baths every two or three days and hot compresses upon the abdomen night and morning are efficacious. Lavements with hot boiled water, to which we add the borate of soda (2 : 1000) or a decoction of camomile, are beneficial to the intestinal mucosa, remove accumulated mucus and fecal masses, and also combat the stenosis which is so liable to exist in the sigmoid flexure. 4. To overcome pains and colics. Hot baths and compresses partially accomplish this purpose. Should the pain become localized a small vesicatory may relieve it. 5. Intestinal putrefaction, shown by fetid stools which have a tendency to become liquid, should be treated by purgative doses of calomel, or, if there be diarrhea with abundant mucus, by small and divided doses. After, or independently of the calomel, give benzonaphthol in the following combination:

℞ Benzonaphthol,		
Betol	ss 0.10	1½ gr.
Bismuth. salicyl	0.05	¾ gr.
Powdered sugar or gum arabic	0.20	3⅓ gr.

For one powder.

Give three times a day in a little milk at the beginning of a meal for a child 4 years old. Continue four to five days. 6. Treat acute attacks of enteritis as described previously. 7. Constipation is likely to persist. Tepid olive oil may be

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introduced into the rectum by means of a soft-rubber catheter. Castor oil should be given daily, and may be alternated with syrup of rhubarb, senna, manna, sulphur, and magnesia. Massage of the abdomen is, in the author's opinion, the only reliable form of treatment, but can be resorted to only after all inflammatory symptoms have disappeared.

Congenital Psychic Deafness.—Liebmann' has observed two cases, but reports only one of them *in extenso*. It is that of a boy of 6 years, of good family history, who never spoke, but always made use of signs. He is well built and nourished and has some power of hearing sounds. The tactile, weight, and temperature senses are but slightly developed; the motor ability is good. While he speaks no word spontaneously, he repeats everything which is said to him, though not distinctly. It is manifestly impossible for him to remember any word long enough to repeat it when he has spoken it a moment before; moreover, his moral sense is deficient and the child is hard to manage. As to the etiology of the condition, the author holds it to lie in the inattention and deficient memory of the patient. The boy was so much improved by means of teaching him words illustrated by signs that he was admitted to school in a short time.

Diagnostic Value of the X-rays in Diseases of Children.—Prof. Escherich' states that he has used the radiograph not only in surgical cases, but in the study of some internal diseases as well, believing that the thinness of the tissues in children would permit of the obtaining of more distinct results than in adults. This theory did not hold in the case of nursing infants, but was sustained in children between the ages of 8 and 12 years. It is more than probable that the bones of infants are not sufficiently calcified to form a contrast to the soft tissues. In cases of rachitis in children from 1 to 4 years old many points may be demonstrated by means of the X-rays. In one case the author endeavored to ascertain the action of phosphorus, but in six months' time the only change noticed was a little more regularity in the zone of ossification in the bones of the arm. No new points of ossification nor increase in size in those already existing were discernible.

A radiographic examination of the lungs gave no brilliant results. Pleuritic exudates, infiltrations, adhesions, etc., were all clearly visible, but their diagnosis was quite as easy by the ordinary clinical methods. Still, it was pleasant to demonstrate perfect transparency of the apices after a clinical examination giving negative results. The mediastinum, unfortunately, gives most unsatisfactory results to the radiograph. The diaphragm is of especial interest. In a case of post-diphtheritic paralysis of the diaphragm, by means of the X-rays there could be seen a marked inspiratory rise from the apex of the right half of the diaphragm, and an almost vertical position of the heart. In children whose thorax was deformed from rachitis and who suffered from severe bronchitis with atelectasis, the diaphragm was seen to became considerably

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lowered and flattened during inspiration. The same phenomenon was noted to a more marked degree in two children of 6 and 11 years suffering from mitral insufficiency which was not compensated for. The author believes that there was a sort of stiffness of the lung, owing to impairment of its retractile power by the condition of stasis which keeps the lung filled with blood and fluid. Treatment based upon this theory, and consisting of expirations into rarefied air, with rhythmic compressions of the thorax during expiration, gave the most gratifying results. The X-rays are of especial value in the determination of various points of interest connected with the heart, especially in cases where pulmonary lesions, emphysema, intrathoracic adhesions, deformities of the thorax, etc., have so altered the usual conditions that percussion no longer gives trustworthy information. The radiograph is also useful in the acute and temporary dilatations of the heart seen in the infectious diseases of children. By its means we can also see the more or less vertical or horizontal position of the heart, and the lateral displacements in normal as well as in pathological conditions. The author has noted the very abnormal position of the heart in certain forms of post-diphtheritic paralysis. It is usually found in cases which terminate in fatal syncope. As a result of experimentation the author is convinced that the difference of intensity in the shadows given by the heart and other organs is due to the greater or lesser amount of water contained in them. The outlines of a dry sponge are scarcely visible by the X-rays, but the more water it contains the darker will be the shadow thrown. Normal lungs give a very faint shadow, but in chronic edema the shadow is dark. The impermeability of the abdomen to the X-rays is no doubt due to the presence of fluids in the intestines. The variations in the shadows thrown by different individuals under identical conditions is probably due to variations in the amount of water contained in the tissues.

Quite recently the author has noted a decidedly analgesic effect of the X-rays upon articular pains in a child suffering from acute rheumatismal polyarthritis.

Diphtheria, Statistics of.—Kossel[8] finds that since the introduction of the serum treatment of diphtheria (1894–1898) the absolute death rate has decreased more than one-half that of any previous equally long period. The proportion holds good not only for the Charité Hospital, but for the city of Berlin as a whole, and for all German cities whose population exceeds fifteen thousand. In every case the decrease in the death rate begins coincidently with the beginning of the use of antitoxin.

Ehrlich's Reaction in Children.—Kissel[9] examined the urine in 269 cases and obtained the characteristic reaction 80 times: in 60 of 76 typhoid patients examined; in 7 of 46 pneumonia cases; in 6 of 16 tuberculosis cases; in 4 of 6 measles cases; and in 3 of 55 various cases of fever. His conclusions are as follows: The characteristic Ehrlich reaction consists of a

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red coloring of the urine with a gray precipitate; typhoid cases which *do not* give the reaction are rare, while pneumonia and tuberculosis cases which *do* give it are rare. In most cases the reaction is more intense when the typhoid is severe, and the lessening of the reaction is a signal of the decline of the disease. The reaction returns in cases of relapse and makes the diagnosis of typhoid easy in young children.

Extragenital Syphilis.—Gross[10] cites the case of a girl 12 years old who came under treatment for diphtheria. After this had subsided a gray, irregular, sharply limited sore remained on the opposing surfaces of both tonsils, and two weeks later a generalized syphilitic areola appeared. The cervical glands were enlarged, as were all the lymph nodes. The exact mode of infection remained unknown, but it is interesting to note that the primary sore on the tonsils acted as the point of entrance of a diphtheritic infection.

Farinacea in the Diet of Later Infancy.—D. J. Milton Miller[11] believes that the best diet during the second year consists, in the majority of cases, largely of nitrogenous food with a minimum of carbohydrates, the staple being milk, or milk mixed with farinaceous gruels and jellies, with beef juice and broths, and after the eighteenth month, as advised by Holt, of rare or raw scraped beef or mutton, and occasionally eggs. The fruit juices may form part of the dietary from the fifteenth month on, and even earlier if sterilized milk is used. Many children can digest the farinacea with benefit during the whole of the second year, but the child's nutrition would seem to be best subserved by permitting them in minimum amounts only.

Foreign-body Extraction from the Wrong Ear.—Walther[12] describes a case in which a little girl 4 years old had a bead extracted from her right ear twenty-four hours after it had been put in by another child. At first the bead had been said to be visible in the left auditory meatus, but a physician tried to remove it and thereby caused it to slip out of sight. The following day it was noticed that both ears were bleeding. The right ear was examined and the foreign body located in the lateral portion of the bony canal. It was removed under narcosis, and the hemorrhage was found to be due to abrasions of the skin in the auditory canal. The left ear had been much lacerated by the first efforts at removal, and it was probably due to the fact that the child turned around without the examiner knowing it that the mistake occurred.

Furunculosis in Nurslings, Pathogenesis of.—Friedjung[9] examined the pus from fourteen furuncles in 9 cases, and found the staphylococcus pyogenes aureus present in every case, with the staphylococcus pyogenes albus in two.

Fragilitas Ossium Scorbutica.—G. A. Sutherland[13] reports several cases with X-ray plates. This condition is the result of hemorrhage under the periosteum or in the medullary cavity, or both. The extravasation of blood under the periosteum leads to its detachment from the bone, which is thus deprived of a strong support and of an important blood supply. Frac-

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ture may occur within a few weeks of this occurrence without the application of any violence. If there is, in addition, any hemorrhage into the medullary cavity, the conditions predisposing to fracture are increased. Speaking generally, the lower extremities are more frequently affected in scurvy than the upper, and therefore the femora and tibiæ are most frequently fractured.

Hernia in Infancy and Childhood.—William B. Coley[11] calls attention to the management of this trouble. He believes that the treatment should not be postponed until the child is a year old, as some writers advise, as the difficulties described are not really found in actual practice, and the dangers of allowing the rupture to go on without support are decidedly real. Regarding the kind of truss for use in infants, the author favors a well-tempered steel spring, as light as consistent with the support required, covered with rubber tubing, with a pad of polished wood or of wood covered with chamois skin. As to the type of the truss, there is little to choose between those of the prominent makers. In applying the truss the pad should rest above the pubic bone and over the internal ring in inguinal hernia. The truss should be kept on day and night, and only removed for cleansing the skin when the child is in a recumbent position. The child should be examined once a month, or at shorter intervals the first few months. The truss should not be left off until at least two years have elapsed since the rupture was last down. This by no means insures a permanent cure in all cases, as occasionally the rupture comes down after the truss is removed; but in these cases the author believes that a permanent cure is unlikely to take place, no matter how long the truss is worn, and that it is better to operate at once. About 25 to 30 per cent are not cured by the wearing of the truss. Operation is advised in following cases: (1) In femoral hernia, the cure by truss in these cases being too infrequent to be considered. (2) Irreducible or adherent omentum (rare in children) and reducible hydrocele may furnish sufficient reason for early operative interference. (3) In those cases in which the rupture cannot satisfactorily be retained on account of insufficient care on the part of the parents. The author favors Bassini's method of operation. Strangulation in infants is more frequent than is generally appreciated, and is often the result of the bad advice from the family physician to postpone wearing a truss.

Hot Water in the Treatment of Intestinal Disorders.—J. de Witt Graham[1] interdicts the use of all nourishment in intestinal disorders and diarrhea so long as hot water given in the nursing bottle will satisfy and quiet the patient. He never allows anything cold to pass the lips of a child suffering from such diseases. Hot water given to an infant every hour at a critical period, when the temperature is as high as 105°, will sometimes cause the temperature to fall two to four degrees in a few hours and induce refreshing sleep. Hot-water enemata aid this action.

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Lumbar Puncture in Children.—Cassel [14] has done lumbar puncture in 15 cases between the ages of 4 weeks and 4 years. Twice he obtained no fluid; in 13 cases the method was successful, from 16 to 50 cubic centimetres being withdrawn. Nine cases of tuberculous meningitis were among the number; the fluid in these cases was clear, fibrin flakes forming only after twenty-four hours. In spite of the most careful search tubercle bacilli were demonstrated only three times. One case of cerebro spinal meningitis gave a cloudy fluid in which the meningococcus intracellularis was found; another gave the pneumococcus. Another case of meningitis following a fall gave a negative result as to organisms in the fluid. In 2 cases of chronic hydrocephalus lumbar as well as cerebral puncture was absolutely without results of any kind. Cassel concludes that the method may be palliative in its results, but as a therapeutic measure it is valueless.

Measles, a New Diagnostic Sign of.—Henry Koplik [15] describes a sign which appears during the first twenty-four or forty-eight hours of the invasion, when there is as yet no eruption and there is some doubt about the nature of the ailment. If one looks into the mouth at this period he will see in a strong light the usual redness of the fauces, and perhaps, not in all cases. a few spots on the soft palate. On the mucous membrane lining the cheeks and lips there appears a distinct and pathognomonic eruption consisting of small irregular spots of a bright red color; in the centre of each spot is the characteristic sign to which attention is called, in the form of a most minute bluish-white speck. These bluish-white specks are absolutely pathognomonic of beginning measles. They can only be seen in a strong window-light. As the exanthem on the skin appears and spreads, the eruption on the buccal mucous membrane becomes diffuse, the characters of a discrete eruption or spotting disappear, and there appears an intense general redness which is simply dusted over with myriads of the bluish-white specks. In the later stages of the skin eruption the phenomena above described are no longer seen.

Slawyk [16] has observed this symptom in 45 of 52 cases of measles, and of the remaining 7, 2 were too ill to be thoroughly examined; the other 5, however, proved to be typical measles cases. The exanthem appears on the mucous membrane of the cheek, most often opposite the lower molar teeth, and cannot be mistaken for any other buccal lesion. They never become confluent, and are never present in any other disease, not even in rubeola. Koplik's symptom is, therefore, an absolutely positive diagnostic sign of measles, and appears on the first or second day of the prodromal symptoms. Eight cases are cited in which the early diagnosis of measles was facilitated by this means.

Measles and Pemphigus, Coincidence of.—Leo [17] relates the history of 3 cases in the same family of children who had had an attack of measles eight months previously. The second attack was preceded by an eruption of pemphigus in one of the

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children, while another developed the pemphigus eruption during the prodromal stage of the measles, and the third had the typical measles exanthem four days before the pemphigus blebs appeared. The two eruptions were distinct and were not to be mistaken for a modified (bullous) measles rash. The cases all ran a severe course, but were followed by recovery.

Osteomyelitis in Earliest Childhood.—Herzog and Krautwig [12] report a case of epiphysitis of the right humerus, upper end, following pneumonia in a boy baby 17 months old. The right shoulder joint was opened up and much pus removed; from this the staphylococcus pyogenes aureus was cultivated. Death occurred three weeks after onset of the disease and five days after operation. The autopsy showed the presence of diphtheria in the nose, pharynx, and larynx; lobular pneumonia; parenchymatous nephritis; multiple abscesses in the epiphyseal end of right humerus, right femur, and fourth rib. The authors look upon the primary disease here as a scarlet fever, in the course of which diphtheria occurred, and of which the bone lesions were complications.

Pemphigus Chronica Vulgaris.—Berend [17] reports such a case in a boy of 5 years, where the disease appeared after an attack of scarlet fever one year before. During the entire year the child had not been free from the eruption, successive crops appearing constantly as old ones dried up. No bacteria could be demonstrated in the blood, the blister contents, or the skin. Arsenic, white precipitate ointment, and baths of potassium hypomanganate constituted the treatment.

Petroleum Poisoning in Childhood.—Baron [18] reports the case of a baby 1¼ years old who drank a quantity of petroleum oil out of a lamp. The first effects were cough and cyanosis; it was difficult to produce emesis. Within a few hours the child became unconscious, with rapid, stertorous breathing and a rapid, irregular pulse. The breath had a decided odor of petroleum. Repeated stomach washing and stimulation caused marked improvement, and in two days the child was quite well. The case shows that the oil is taken up by the blood current and excreted by the lungs much more rapidly than it is absorbed through the gastro-intestinal tract. A stool excreted seven hours after injection of the oil gave no petroleum odor.

Prepuce and Meatus, Surgery of the.—B. H. Doggett [19] reviews the literature of circumcision and describes various methods. The removal of the entire foreskin by the usual method leaves the glans exposed, whereby its delicate and sensitive papillæ become hardened, Tyson's glands are destroyed, and the part becomes indurated. Splitting the prepuce through the middle line of the dorsum from its margin to the coronal sulcus, and paring off the remaining flaps, gives untidy results. Dilatation and divulsion have not overcome the defect satisfactorily. The writer describes at length an operation of his own device, which he fully describes.

Pulmonary Tuberculosis in Children.—A long and interesting article is thus summed up by J. Comby [20]:

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I. TUBERCULOSIS OF INFANCY. *Etiology.*—Out of 211 children from 0 to 2 years of age who died at the hospital, 133 had no tuberculosis and 28 were tuberculous, or 13.27 per cent. The frequency of its occurrence varies with age. Out of 72 cases under 3 months, none were tuberculous; this argues against heredity. Of 53 children between 3 and 6 months, 4 tuberculous (7.54 per cent); of 57 from 6 to 12 months, 13 tuberculous (22.80 per cent); of 29 from 1 to 2 years, 11 tuberculous (38 per cent). The proportion of tuberculous children progresses with regularity from the first months of life, when it is at its minimum, to the second year, when it attains its maximum. In the first year the percentage does not reach 9 per cent; in the second year it reaches 38 per cent. A comparison of these figures argues against heredity and for contagion. A child who runs about and plays on the ground runs greater risks than in its cradle or in the nurse's arms. It more readily and more directly inhales dust laden with bacilli, which lodge and colonize in the tracheo-bronchial glands, later to form secondary colonies in the lungs and other organs.

Pathological Anatomy.—The caseation of the tracheo-bronchial glands, which is nearly always present, and the greater age of this glandular tuberculosis than that of the disseminated granulations in the viscera, indicate the primary origin of tuberculosis. *It is through the respiratory tract, and not through the digestive tract, that tuberculosis enters the system.*

Of 28 autopsies made upon children under 2 years, the tracheo-bronchial ganglia were found to be caseous 28 times; in 21 cases the lungs were affected. The author found cavities in the lungs 7 times, four of the children being 4, 6, 8, and 9 months old only. Pulmonary phthisis in infants is often extremely rapid, leading in a few months or even weeks to the formation of cavities. Of 21 children suffering from pulmonary tuberculosis, 8 had ulcerations of the intestines (3 a tuberculous ulcer of the stomach). Of the 28 little patients, 4 had granulation of the peritoneum, 13 of the liver and spleen, 4 circumscribed granulations of the kidneys, 3 of the meninges.

Clinical Varieties.—In a study of 24 cases the author observed the following forms: 1. *Apyretic tuberculosis* (10 cases), some with disseminated granulations, some with pulmonary cavities. The symptoms in these children, whose ages ranged from 4 to 14 months, were emaciation, diarrhea, and vomiting; they were easily judged to be athreptic or dyspeptic. 2. *Febrile tuberculosis* (12 cases) with high fever, even hyperpyrexia, bronchial râles, soft or harsh souffle (suggesting pneumonia or broncho-pneumonia); or the fever was accompanied by gastric disturbances, prostration, and a typhoid condition, suggesting meningitis or typhoid fever. 3. *Ulcerative phthisis, classical in type* (2 cases), resembling that of adults, with hectic fever, cough, sweats, club-shaped fingers, etc. Whatever the clinical form, it is a noteworthy fact that in nursing infants tuberculosis develops more rapidly than in adults or in older children, the disease in a few weeks or months reaching

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a condition which it usually takes several years to attain. It has also a well-known tendency to become generalized under the form of visceral disseminated granulations.

Certain diseases have an aggravating influence upon tuberculosis, such as measles and whooping cough in the first place, then diphtheria, grippe, pneumonia, etc. A child may be in perfect health until after an attack of measles and then develop hasty consumption or generalized granulations. Mild infections (streptococcus, staphylococcus) may also exert a pernicious influence.

II. TUBERCULOSIS OF LATER CHILDHOOD.—In older children pulmonary tuberculosis is apt to resemble ordinary phthisis. Out of 45 observations upon children from 3 to 15 years of age the author has distinguished the following types:

1. *Apyretic pulmonary tuberculosis* (11 cases) may occur with any form of lesion (granulation, localized infiltration, cavities); it may be terminated by sudden death. Latent and torpid phthisis is not rare in older children.

2. *Febrile tuberculosis* with small or extensive thermic variations, a progressive course of the disease, cachexia and death from marasmus.

3. *Tuberculosis with pneumonic or broncho-pneumonic character*, beginning as do these diseases and exactly simulating them.

4. *Pleuritic and pleuro-peritoneal tuberculosis*, frequently curable.

5. *Tuberculosis of a typhoid character*, with prolonged gastric disturbances. At the autopsy we find pulmonary granulations and sometimes generalized tubercles.

The prognosis of the tuberculosis of older children is less grave than that of infants, cases of complete recovery not being infrequent.

Rheumatic Affections of the Heart in Childhood and Early Adolescence.—John F. H. Broadbent[21] emphasizes the fact that the articular manifestations of rheumatism in childhood and early adolescence are, as a rule, slight, and may be confined to fugitive pains or stiffness in the joints and limbs; there may be little or no constitutional disturbance, so that the patient, after a day or two indoors, goes about again as usual. In spite of this absence of any marked symptoms, the rheumatic poison may all the time be attacking the heart and setting up an endocarditis, a pericarditis, or a myocarditis in conjunction with one or both of these. The heart in childhood rarely escapes damage in rheumatism, and, owing to the insidious nature of the inflammatory process, irreparable damage may be done before the severity of the cardiac symptoms compels the patient to seek medical advice. When there is a suspicion of rheumatism in children there are certain danger signals, such as rheumatic nodules, exudative erythemata, and chorea

Serum Therapy in Diphtheria, Further Contributions to.—Baginsky[9] has reported on 525 cases treated with serum

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up to March 15, 1895, and now adds 799 cases treated from then until June, 1897. Of these 74 died. He believes that the antitoxic serum in diphtheria has proved a most valuable and positive remedy whenever it has been used in sufficiently large quantities and sufficiently early in the disease. In view of this very decided effect of the serum, immunization of children who have been exposed to the disease is not necessary, and is to be limited to foundling asylums and hospitals.

Spina Bifida with Diastematomyelia, Case of.—Theodor[9] reviews the literature and reports the case of a baby with a spina bifida, into which he injected a 1 : 5000 bichloride solution after emptying the sac. No result having been obtained, an operation was performed on the 7-days-old child, who died one week later. At the autopsy a purulent meningitis was found over the cord and base of the brain, while the cord presented, except above the third dorsal vertebra, a complete splitting into two equal portions. The sacral canal was distended with pus and closed by a membranous wall posteriorly. Microscopical study of 1,650 sections of the cord shows that the process occurred as follows: A wedge of gray and white nerve matter pushed its way into the cord posteriorly and so spread the posterior columns. This process going on, the spinal canal was partitioned off into two parts, each smaller than the original single canal, but with an epithelial lining. The anterior septum also grows in size, and the result is a complete halving of the cord. The central canal gives off several branches, so that a canal system is formed throughout the entire cord.

Strangulated Hernia in Infants under One Year of Age.—Charles N. Dowd[11] gives the report of a case successfully treated by operation, and also presents the statistics of 18 cases gathered from the literature of the subject. In the 18 cases there were 3 deaths. Tietze, who reports them all, considers that they were the result of delay before operation, and believes that the children would all have lived if the operation had been done at the proper time. This delay is probably due to the failure to make early diagnosis; as the condition is so rare, it is not looked for. Importance is attached to the following symptoms: 1. Vomiting, if severe and persistent, the vomiting sometimes being preceded by singultus. 2. Constipation. 3. Anuria, which often exists and is of a reflex nature.

Vulvitis Gangrenosa (Noma Genitalium) with Diphtheria Bacilli; Treatment with Serum; Cure.—Freymuth and Petruschky[8] report the case of a 3-year-old girl who had measles, hoarseness, and dysphagia without any visible membrane in the throat. On the third day of this disease noma of the vulva began. Diphtheria bacilli were found in the necrotic masses. Antitoxin serum was administered, and was followed in three days by improvement in the gangrenous process. In all five injections were given, as the healing seemed very slow, but was observed to "light up" after each injection. The authors hope that corroborative cases may soon be forth-

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coming, and especially that facial noma may be found dependent upon a similar etiology, and therefore similarly benefited by treatment.

The Weighing of Nursing Infants.—Eugène Lust[11] urges the regular and systematic weighing of nursing infants, and describes a case in which this process was the means of saving the child's life. The infant, 2 months old, was sent to the author by Dr. Delacroix, who believed that the nourishment derived from the mother was defective. Every week the child was placed upon the scales, as is the routine habit in the case of all children received and treated at the Laiterie Maternelle des Enfants Martyrs. To the author's surprise this child alone failed to gain in weight. An investigation showed that while the mother scrupulously carried out the doctor's orders as to the nourishment and the times of its administration, she had for four weeks been giving it calomel and benzonaphthol powders, morning and night, with great regularity. These had been prescribed for it by the attending physician for temporary administration, and, the child having at that very time shown the marked and beneficial effects of the new diet, the mother had attributed the greater part of the improvement to the medication and had continued to give them. Had it not been for the habit of weighing the infants, attention might not have been drawn to this child's condition until too late to arrest the effect of the daily poisoning to which it was subjected.

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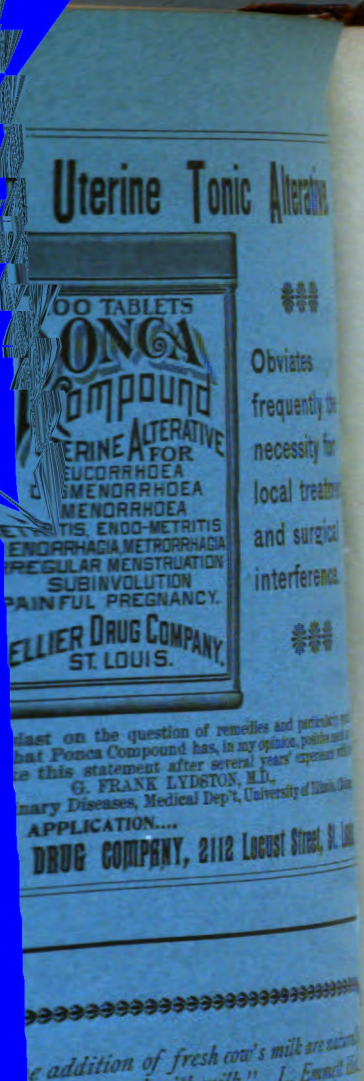
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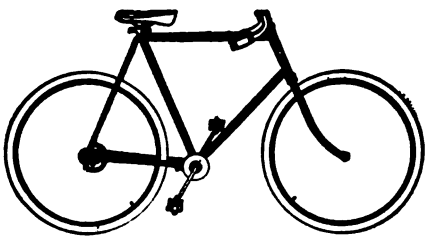
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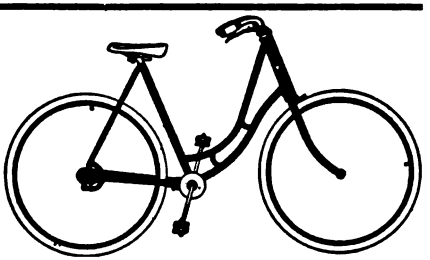
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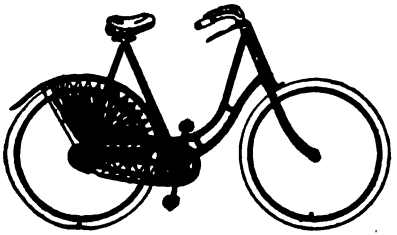
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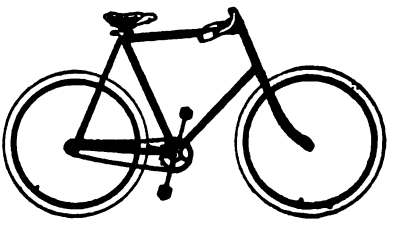
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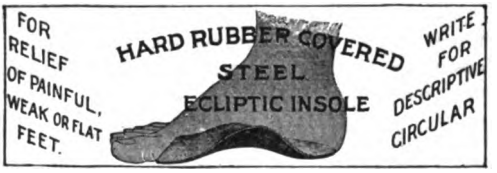


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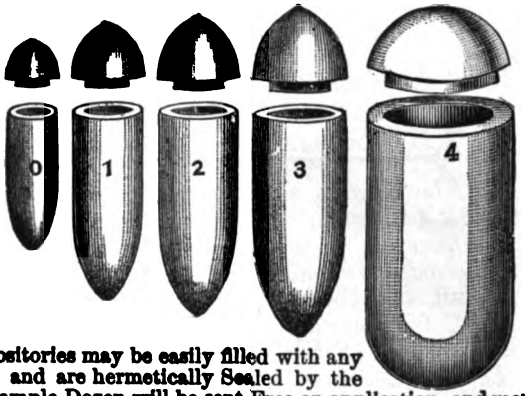
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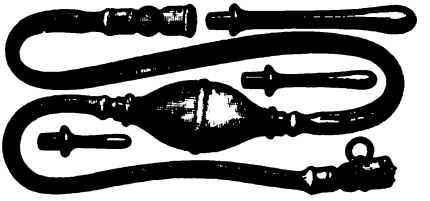
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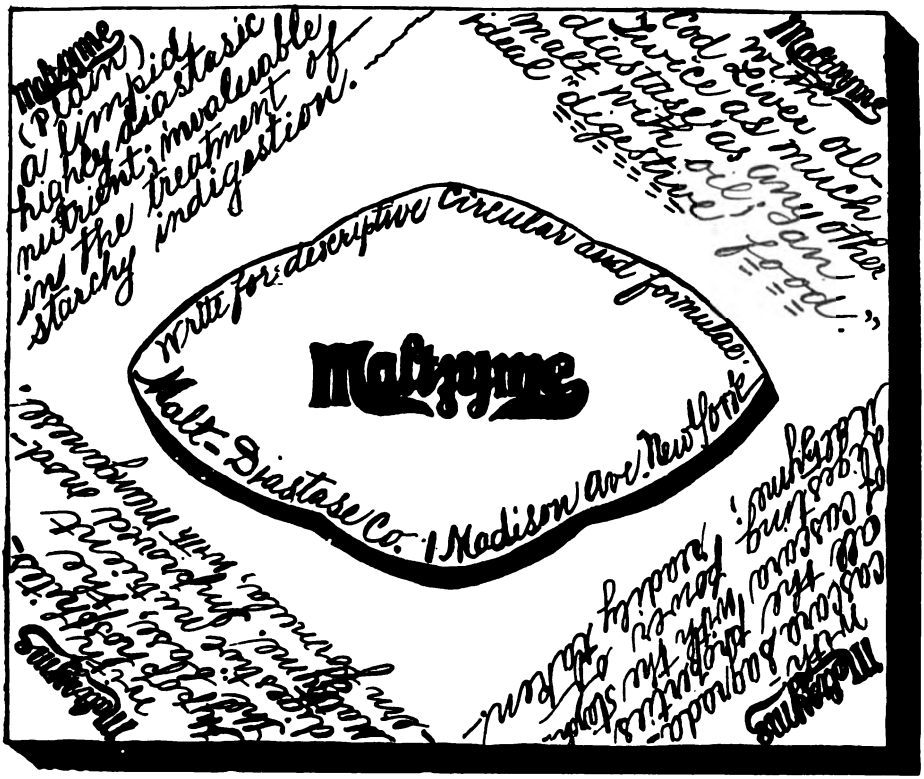
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